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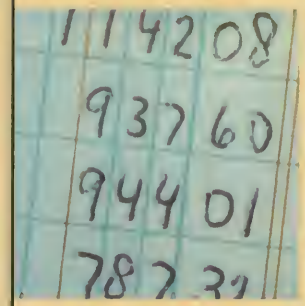

UNDERGRADUATE CATALOG
1984-1986

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University of New Haven

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UNDERGRADUATE CATALOG 1984-86

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This catalog supersedes all previous bulletins, catalogs and brochures published by the University of New Haven and describes academic programs to be offered beginning in fall 1984. Undergraduate students admitted to the university for the fall of 1984 and thereafter are bound by the regulations published in this catalog.

The University of New Haven is committed to affirmative action and to a policy which provides for equal opportunity in employment, advancement, admission, educational opportunity and administration of financial aid to all persons on the basis of individual merit. This policy is administered without regard to race, color, national origin, age, sex, religion or disabilities not related to performance. It is the policy of the University of New Haven not to discriminate on the basis of sex in its admission, educational programs, activities or employment policies as required by Title IX of the 1972 Educational Amendments. This school is authorized under federal law to enroll non-immigrant alien students.

Inquiries regarding affirmative action, equal opportunity and Title IX may be directed to the director of equal opportunity.

The male generic terms appearing throughout this book refer to both males and females and are used for grammatical simplicity and semantic convenience.

The university reserves the right, at any time, to make whatever changes may be deemed necessary in admission requirements, fees, charges, tuition, regulations and academic programs prior to the start of any class, term, semester, trimester or session.

Every effort has been made to ensure that the information contained in this publication is accurate and current as of the date of publication; however, the university cannot be held responsible for typographical errors or omissions that may have occurred.

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ACADEMIC CALENDAR

1984-1986 Undergraduate Day & Evening Divisions

Fall Semester 1984

August 1984	Tuition and residence charges due	**Wed., 1**
September 1984	Residence Halls open for new students	**Sun., 2**
	Holiday (*Labor Day*)	**Mon., 3**
	Residence Halls open for returning students	**Tues., 4**
	Orientation	**Tues.-Wed., 4-5**
	Evening classes begin	**Wed., 5**
	Day classes begin	**Thurs., 6**
	Last day to add day courses without late fee	**Mon., 10**
	Last day for schedule revision	**Wed., 12**
October 1984	Last day to petition for January graduation	**Mon. 15**
	Last day to drop courses	**Fri., 19**
November 1984	No evening classes	**Wed., 21**
	Thanksgiving recess	**Thurs.-Sat., 22-24**
December 1984	Day classes end	**Fri., 14**
	Evening classes end	**Sat., 15**
	Reading day	**Sat., 15**
	Final examinations	**Mon.-Sat., 17-22**
	Last day of semester	**Sat., 22**
	Residence Halls close	**Sat., 22**
January 1985	Commencement	**Sun., 20**

Intersession 1985

January 1985	Classes begin	**Wed., 2**
	Holiday (*Martin Luther King*)	**Tues., 15**
	Classes end	**Wed., 23**

Spring Semester 1985

January 1985	Tuition and residence charges due	**Wed., 2**
	Residence Halls open for new students	**Tues., 22**
	Orientation	**Wed., 23**
	Residence Halls open for returning students	**Wed., 23**
	Classes begin	**Thurs., 24**
	Last day to add day courses without late fee	**Mon., 28**
	Last day for schedule revision	**Wed., 30**

February 1985	Holiday (*President's Day*)	Mon., 18
March 1985	Last day to petition for June graduation	Fri., 1
	Last day to drop courses	Fri., 1
April 1985	Spring recess	Thurs.-Sat., 4-13
	Classes resume	Mon., 15
May 1985	Classes end	Mon., 13
	Reading day	Tues., 14
	Evening exams begin	Tues., 14
	Final examinations	Wed.-Tues., 15-21
	Last day of semester	Tues., 21
	Residence Halls close	Wed., 22
June 1985	Commencement	Sun., 9

Fall Semester 1985

August 1985	Tuition and residence charges due	Thurs., 1
September 1985	Residence Halls open for new students	Sun., 1
	Holiday (*Labor Day*)	Mon., 2
	Residence Halls open for returning students	Tues., 3
	Orientation	Tues.-Wed., 3-4
	Evening classes begin	Wed., 4
	Day classes begin	Thurs., 5
	Last day to add courses without late fee	Mon., 9
	Last day for schedule revision	Wed., 11
October 1985	Last day to petition for January graduation	Tues., 15
	Last day to drop courses	Fri., 18
November 1985	No evening classes	Wed., 27
	Thanksgiving recess	Thurs.-Sat., 28-30
December 1985	Day classes end	Fri., 13
	Evening classes end	Sat., 14
	Reading day	Sat., 14
	Final examinations	Mon.-Sat., 16-21
	Last day of semester	Sat., 21
	Residence Halls close	Sat., 21
January 1986	Commencement	Sun., 19

Intersession 1986

January 1986	Classes begin	**Thurs., 2**
	Holiday (*Martin Luther King*)	**Mon., 20**
	Classes end	**Wed., 22**

Spring Semester 1986

January 1986	Tuition and residence charges due	**Thurs., 2**
	Residence Halls open for new students	**Tues., 21**
	Orientation	**Wed., 22**
	Residence Halls open for returning students	**Wed., 22**
	Classes begin	**Thurs., 23**
	Last day to add day courses without late fee	**Mon., 27**
	Last day for schedule revision	**Wed., 29**
February 1986	Holiday (*President's Day*)	**Mon., 17**
March 1986	Last day to petition for June graduation	**Mon., 3**
	Last day to drop courses	**Mon., 3**
	Spring recess	**Mon.-Sat., 24-29**
	Classes resume	**Mon., 31**
April 1986	Holiday (*Passover*)	**Thurs.-Sat., 24-26**
May 1986	Classes end	**Mon., 12**
	Reading day	**Tues., 13**
	Evening exams begin	**Tues., 13**
	Final examinations	**Wed.-Thurs., 14-20**
	Last day of semester	**Tues., 20**
	Residence Halls close	**Wed., 21**
June 1986	Commencement	**Sun., 8**

THE UNIVERSITY

The University of New Haven is a private, urban, coeducational university with a contemporary and innovative view of higher education.

The undergraduate programs here are designed to meet the needs of today's students by offering them the professional training they will need for careers in a highly competitive job market.

The university balances its curriculum by offering a liberal, humanistic education with professional programs in business, engineering, computer science and other advanced technical programs.

The university also is flexible enough to meet the needs of students who work while they attend school at UNH. The Evening Division offers a range of programs at night. A cooperative education program makes it possible for students to alternate semesters of class attendance with related work experience.

By responding to the educational needs of our students, the University of New Haven has become a major regional university serving both our students and the business community.

Accreditation

The University of New Haven is a coeducational, non-sectarian, independent institution of higher learning chartered by the General Assembly of the State of Connecticut.

The University of New Haven is fully accredited by the New England Association of Schools and Colleges, which accredits schools and colleges in the six New England states. Membership in the association indicates that the institution has been carefully evaluated and found to meet standards agreed upon by qualified educators.

The university holds membership in the American Council on Education, the Association of American Colleges, the National Association of Independent Colleges and Universities, the Accreditation Board for Engineering and Technology, the Criminal Justice Accreditation Council, the American Dietetics Association, the College Entrance Examination Board and is a member of other regional and national professional organizations.

Individual programs, departments and schools hold various forms of national professional accreditations, listed under relevant sections of the catalog.

History

The University of New Haven was founded in 1920 as the New Haven YMCA Junior College, a branch of Northeastern University. The college became New Haven College in 1926 by an act of the Connecticut General Assembly. For nearly 40 years, the college held classes in space rented from Yale University.

In September 1958, the college completed construction of a classroom building on Cold Spring Street, New Haven, for its daytime engineering building. That same year, the college received its first authorization from the Connecticut legislature to offer the bachelor of science degree in the fields of business accounting, management and industrial engineering.

But though its student body on the new Cold Spring Street campus numbered fewer than 200 persons, the college's facilities were fast becoming overcrowded. To meet the needs of the college and the local community, the Board of Governors purchased, in 1960, three

buildings and 25 acres of land in West Haven, formerly belonging to the New Haven County Orphanage.

The combination of increased classroom space and the four-year degree program sparked a period of tremendous growth in enrollment and facilities. In 1961, the year after the college moved to West Haven, the graduating class numbered 75. More than twenty years later, the figure has climbed to more than 1,200.

New Haven College received full accreditation of its baccalaureate programs from the New England Association of Schools and Colleges in 1966. In 1969, the college took a major step forward with the addition of the Graduate School. Initially offering programs in business administration and industrial engineering, the Graduate School expanded rapidly. Today, 23 programs and additional courses have pushed graduate enrollment to more than 2,400.

On the fiftieth anniversary of the founding of the college, in 1970, New Haven College became the University of New Haven, reflecting the increased scope and the diversity of academic programs offered.

Today, the university offers more than 100 graduate and undergraduate degree programs in six schools: the Graduate School and the School of Arts and Sciences, the School of Business, the School of Engineering, the School of Hotel, Restaurant and Tourism Administration and the School of Professional Studies and Continuing Education.

Undergraduate courses and programs are offered in West Haven on the main campus as well as in the Groton/New London area. Graduate courses and programs are offered in West Haven and in Danbury, Clinton, Waterbury, Middletown, Trumbull, Stamford, Groton/New London and downtown New Haven.

Philosophy

The basic assumptions and goals that have governed and continue to govern the academic programs and life of the university are four:

- the belief that there is value and virtue in a general education to help students acquire an understanding of society and the place of the individual within it,
- a conviction that the hallmark of an educated person is a critical mind in the sense of a capacity to test and challenge previous assumptions and new ideas,
- a strong commitment to the principle that in a complex and technological society a university cannot be insensitive to the need of its students for professional training which will enable them to obtain rewarding and productive employment, and
- that a higher education must provide students with a breadth of knowledge and a sensitivity to weigh ethical and moral issues and form values and life goals.

Other assumptions and considerations governing the academic programs and activities of the university are:

- the need for students to participate in work and service activities which provide contacts with other aspects of society and in using skills and exercising judgment and responsibility in a variety of settings outside the university community.
- the importance of allowing full play and scope to the creative abilities and intellectual curiosity of students through opportunities to pursue independent study and investigation.
- the importance of recognizing the educational interest of students geared toward specific professions and careers as students seek to adjust to changing labor market conditions, and the preparation of students for graduate and professional training beyond the baccalaureate.

Degrees Offered by the University

Undergraduate Degrees

The University of New Haven offers undergraduate programs leading to the bachelor of arts degree, the bachelor of science degree, the associate in science degree and a number of certificate programs.

Bachelor's Degrees

The bachelor's degree programs require approximately 120 credit hours of study and take four years for full-time day students. Many other University of New Haven students take advantage of the full range of courses offered in the evening and complete their undergraduate degree on a schedule that complements their own careers.

Associate Degrees

Associate degree programs are designed to encourage students to begin their college education even though they do not yet want to commit themselves to a full, four-year course of study. Sixty or more credit hours are required for the associate degree, and the credits earned may later apply toward the student's bachelor's degree.

Certificate Programs

Students can take their first step toward an undergradute degree by registering for one of the certificate programs offered by the university.

Each certificate program is carefully designed as a concentrated introduction to a particular subject area and consists of courses totaling 15 to 30 credit hours.

Later, students may choose to apply the credits they have earned toward their undergraduate degree at the university.

Graduate Degrees

Through the UNH Graduate School, programs are offered leading to the master of arts degree, the master of science degree, the master of public administration, the master of business administration, the executive master of business administration and a number of senior professional certificates. A doctoral program in business is scheduled to begin in fall 1984.

Schools of the University

School of Arts and Sciences

The School of Arts and Sciences offers associate degree programs in seven academic fields and bachelor's degrees in 23 fields from art to world music. The school's certificate programs offer specialized instruction to students interested in a concentrated exposure to one subject area, in fields such as journalism and advertising design.

Through the Graduate School, the School of Arts and Sciences also offers master's degree programs as well as a senior professional certificate. Detailed information on the graduate programs is available in the Graduate School catalog.

School of Business

The School of Business offers programs in the departments of accounting/finance; communication; economics and quantitative analysis; management; marketing & international business; and public management which includes criminal justice, forensic science and public administration.

Through the Graduate School, the School of Business offers master's degree programs as well as a number of business-related senior professional certificates.

School of Engineering

The School of Engineering offers degree programs in seven fields: chemistry, chemical engineering, civil engineering, computer science, electrical engineering, industrial engineering, materials technology, and mechanical engineering.

Master of science degree programs and a senior professional certificate are offered through the Graduate School in seven engineering fields. Students may consult the Graduate School catalog for more details.

School of Hotel, Restaurant and Tourism Administration

The School of Hotel, Restaurant and Tourism Administration offers degree programs through the departments of hotel and restaurant management, tourism and travel administration, and dietetics and institutional management.

Master of business administration concentrations in hotel and restaurant management and dietetics administration are offered through the Graduate School. Students may consult the Graduate School catalog for more details.

School of Professional Studies and Continuing Education

The School of Professional Studies and Continuing Education offers programs leading to the associate in science degree, the bachelor of science degree, and certain master of science degrees. In addition, the school offers certificates as well as part-time credit and non-credit courses both on and off campus. The school has six distinct units:

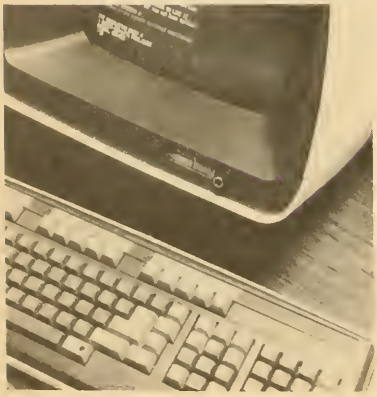
The Division of Evening Studies, Summer Sessions and Winter Intersessions

A wide variety of undergraduate courses are offered in evening sessions during the fall and spring semesters. Summer day and evening courses are offered during four-, five-, and seven-week sessions. During the winter intersession in January, both innovative and conventional intensive courses are offered mornings and afternoons. All the offerings in this division are credit courses leading to certificates or to associate and bachelor's degrees.

Those interested may call the Evening Studies office to receive a schedule before each semester.

Professional Studies

Professional Studies offers associate in science degree programs in aviation science, occupational safety and health, and fire and occupational safety. Bachelor's degree programs are offered in fire science administration, arson investigation with a minor in criminal justice, and fire science technology with a minor available in civil engineering. The bachelor's degree in occupational safety and health permits the selection of a minor tailored to the interests of the individual.



Special Studies

This division offers a variety of non-credit certificate courses in both specialized and general areas of study as well as intensive seminars and workshops. Non-credit courses offer the opportunity to upgrade professional skills, explore new directions and increase enjoyment of leisure time.

In conjunction with the Institute of Computer Studies, Special Studies offers a full range of computer courses from individual and family applications of home computers to advanced languages and applications for individuals with more experience, and business applications with specific and individualized focus.

Special Studies also provides the necessary courses for state certification in such fields as real estate and insurance as well as a large variety of personal enrichment and professional development workshops. Most courses meet one evening per week and generally include six to 12 sessions. The university awards continuing education units (CEUs) for successful completion of most courses.

Those interested may call Special Studies to receive a schedule.

Co-op Programs

Cooperative Education (Co-op) is a unique academic program that enables a student to combine practical work experience with his or her college education. While earning a bachelor's degree, the student alternates periods of employment in the business or industrial community with periods of on-campus study in the job-related field.

UNH in Southeastern Connecticut

UNH in Southeastern Connecticut is a division that offers programs at locations in the Groton-New London area.

Graduate School

The Graduate School, founded in 1969, offers master's degrees in 23 programs, and 16 senior professional certificates beyond the master's degree. There are eight Graduate School locations throughout Connecticut. The main campus offers all academic programs. The off-campus centers at Danbury, Waterbury, Trumbull, Clinton, Middletown, Wallingford, Groton and New Haven offer courses leading to a master's degree in business administration, computer and information science, and other selected programs.

Programs in the Graduate School include:

Accounting
Business Administration
Business Administration/Industrial Engineering dual degree
Business Administration/Public Administration dual degree
Community Psychology
Computer and Information Science
Criminal Justice
Electrical Engineering
Environmental Engineering
Environmental Science
Executive M.B.A.
Forensic Science
Gerontology
Humanities
Industrial Engineering
Industrial/Organizational Psychology
Industrial Relations
Legal Studies
Mechanical Engineering
Occupational Safety and Health Management
Operations Research
Taxation
Public Administration,
Senior Professional Certificate Programs
Professional Certificate Programs

The Graduate School schedules its courses to meet the needs of working professionals. The trimester calendar begins each term in September, January and April. In addition, courses are offered during a special summer term beginning in July. Courses are scheduled during the late afternoon, early evening, and on Saturday.

Those who wish additional information about the Graduate School should write to Graduate Admissions to request a copy of the Graduate School catalog or call 932-7133.

Services and Facilities of the University

The Institute of Computer Studies

The University of New Haven Institute of Computer Studies (ICS) is a multi-disciplinary academic organization merging people, ideas and resources to promote, enhance and support computer-related programs and activities at UNH. It serves as a catalyst to ensure that a broad, yet interrelated spectrum of high-quality academic programs, both credit and non-credit, are offered. The institute also actively promotes and facilitates departmental and multi-disciplinary development of new programs, enables the university to attract highly qualified faculty, and serves as a focal point for providing education-related services to business and industry.

The University of New Haven has fostered the multi-faceted development of computer science and computer-related courses in each school. An increasing number of faculty and students are becoming interested in some aspect of computing. The institute provides coordination and leadership for the breadth and scope of these activities, including information and guidance about our many fine programs, information about grants, and enlightenment through non-credit courses to the community at large.

The organization was created from the recognition of this growing diversity of computer needs and applications in the university community. In particular, there are seven specific areas which encompass the activities of the institute:

1. Support and promote science and applications research.
2. Coordinate computer-related activities and long-range planning of computer resources.
3. Assist industrial firms in assessing and providing their computer training requirements.
4. Assist departments in offering non-credit courses in computer-related areas.
5. Develop new programs and courses.
6. Advise students on computer-related programs.
7. Disseminate information concerning academic computing activities.

Facilities

The university's 58-acre campus contains 16 buildings that offer students modern laboratory and library facilities, the latest in computer technology and equipment, an athletic complex, and residential facilities.

Located in West Haven, about 10 minutes from downtown New Haven, the main campus includes administration and classroom facilities in the Main Administrative Building, the Graduate School, the Engineering and Sciences Building, Computer Center facilities, the Marvin K. Peterson Library, the Student Center and bookstore, the Psychology Building, the School of Business Building, and residence halls.

The south campus includes Harugari Hall and the Student Services and Admissions Building, while the north campus is the site of the university's athletic fields and gymnasium.

Some of these facilities are described in the following paragraphs.

Marvin K. Peterson Library

The Marvin K. Peterson Library, named in honor of a former president of the university, was opened in 1974. Adjoining the Main Building, it includes special collection rooms, a music room, archives and spacious reading and reference areas. Study is made convenient by modern research facilities and equipment including microreading stations and microform reader-printers, as well as computer terminals.

The library contains approximately 300,000 volumes, including U.S. government documents. The library subscribes to over 1,000 periodicals and maintains extensive back issues files.

The resources of both the New Haven and West Haven public libraries are available to students (non-residents must pay a fee). Under a reciprocal arrangement, University of New Haven students may borrow materials from the libraries of Albertus Magnus College and Quinnipiac College by presenting a valid identity card.

Computer Center

The university Computer Center provides a state-of-the-art facility to both academic and administrative functions at the university. The center maintains three independent processing units, each accessible from any given terminal via a network processor capable of polling for ports, both direct-connect and dial-up. Further, these three processors are locally networked via XODIAC (Data General's network support system). The center also supports several popular micro-computers.

The academic facility's primary computers are the Data General MV8000 and the S-140. Both are the Eclipse line. The MV8000 is a 32-bit processor: this system contains 10 megabytes of real main memory and has a virtual address range of 4 gigabytes. The CPU runs at 1.1 million instructions per second. The system has floating point hardware and functions in a multiprogramming/multitasking environment. The operating system is AOS/VS and is capable of handling 255 concurrent processes. The system presently supports 75 video-display tubes. A full-screen editor dramatically enhances program generation and throughput. All programming is done interactively. Communication capabilities are superb and include such protocols as SNA, X.25, XODIAC, etc. Simulations of HASP, RJE80, IBM-2780/3780, etc. are also available.

Software support includes ANSI languages such as COBOL, FORTRAN-77, PL/1, RPG-II, BASIC, Pascal, C, APL and a native 32-bit Assembler. Various packages such as a database manager (INFOS II), a SORT/MERGE package, SPSS, a mathematical/statistical package (IMSL) and TWODEPEP (finite element programs) are all readily available for users. Other packages include discrete and continuous simulation (SLAM), marketing simulations, mechanical engineering applications programs, civil engineering applications programs and mathematical differential system simulations. Many other popular software packages (UNIX, VLSI, etc.) are also available.

The center also provides access to a Tektronics 4027 raster display, 3 4105 color rasters and a 4662 multi-color plotter. These graphics tubes are driven by PLOT-10 and IGL. The computing curriculum now includes several graphics courses.

The Data General S-140 is used to drive a MEGATEK Vector Refresh Graphic unit. The MEGATEK has a 4096 x 4096 screen and supports KB entry, joystick, light-pen and tablet unit. The graphics processor includes hard-wired 3-D, rotational/translation features and all are activated by FORTRAN callable routines. Software includes WAND which generates graphics commands. In-house programs have been developed to aid users in development of applications programs. The S-140 is a 16-bit processor, has a 1.2 megabyte main memory and

supports up to 5 terminals with all active at present. The operating system is AOS and communicates with the MV8000's through XODIAC allowing the S-140 users to make use of the 32 bit compilers on the MV8000.

The micro-computers support BASIC; some have FORTRAN-77 and Pascal; the Atari has a music composer as well as various game cartridges. All micros can be used as intelligent terminals to the main computers via a network system. A Nec printer is mechanically switchable for all micros.

Students and faculty have access to all of the above facilities.

Athletic Complex

The university's north campus houses the gymnasium, with seating for 1,500 at sporting events, a fully equipped weight room, racquetball court, and steam room.

On the adjacent grounds are six tennis courts, baseball and softball diamonds, and the Robert B. Dodds Field, a combination football, lacrosse and soccer field, with seating for 3,000.

The National Art Museum of Sport

The National Art Museum of Sport was founded in 1959 and in 1964 received its charter from the New York State Board of Regents. Since 1979, its permanent collection has been located at the University of New Haven. Some fifty paintings, sculptures, drawings and prints are now displayed in the gallery, located in the School of Business building, the balance hanging in the Marvin K. Peterson Library. This collection, plus the museum's traveling collection, several works on loan elsewhere, and hundreds of photographs comprise what is generally credited to be America's largest and most diversified assemblage of sports art.

STUDENT LIFE

John E. Benevento, acting dean of student affairs and services

Being a student at the University of New Haven means being a part of the New Haven community—a city noted for its music, theater, art galleries, and more.

Musical entertainment ranges from year-round performances of the New Haven Symphony to rock concerts at the New Haven Coliseum to local bands at many downtown clubs. Professional theater thrives in New Haven at Long Wharf Theater, the Yale Repertory Company, the Shubert, and at the nearby American Shakespeare Theater in Stratford, Conn. Some of the region's outstanding art collections can be seen on the Yale University campus.

On weekends, the Connecticut shore, Cape Cod, the ski slopes of Vermont and New Hampshire, and New York City are just a car or bus ride away.

Activities on Campus

On campus, students can attend a variety of events including movies, lectures by a variety of well-known public figures, rock music concerts, student theatrical presentations, and more.

Clubs and Organizations

Almost 40 university student clubs and societies are open to interested students. Included are student chapters of professional societies, religious organizations, social groups and special interest clubs.

Councils

Separate day, evening and graduate student councils have the responsibility for initiating, organizing and carrying through extracurricular activities and acting as liaison between students and the university staff.

The Day Student Government is a forum where undergraduate students can provide input to the administration to improve all aspects of undergraduate education at the university. The council schedules a number of extracurricular activities; all students are encouraged to participate.

Cultural Activities

There are student organizations formed around interests in literature, art, film and drama. These groups sponsor visiting artists and lecturers, produce plays and concerts, publish materials and generally provide a well-rounded cultural program for University of New Haven students.

Fraternities and Sororities

National and local service, social and honorary fraternities and sororities are active on campus. They sponsor programs such as the semi-annual bloodmobile and other services as well as social functions.

Publications

Student publications include *The News*, the university student newspaper; *The Chariot*, the annual yearbook; and the *The Noiseless Spider*, a literary publication. Students may volunteer their services on any of the student publications.

Social Activities

The social calendar is filled with varied events to appeal to all students: mixers, concerts, films, cabarets and Homecoming.

Alumni Office

Patricia A. Ahern, director

Membership in the Alumni Association is acquired immediately upon graduation. All degree graduates become members automatically. Including the class of 1984, there are approximately 16,000 members of the Alumni Association. The alumni director, with the assistance of the Alumni Association president and board, conducts the affairs of the association during the period between board meetings, which occur four times per year.

As a member of the Alumni Association, each graduate receives an alumni I.D. card which enables him or her to use the university library, gymnasium facilities, and Career Development services, and gain admission to home athletic contests and access to a special alumni low tuition audit program. *Insight*, an all-college publication, is mailed to all alumni five times per year. Homecoming, an annual event in October, and other educational and social events are open to all alumni. Alumni volunteers play an important role in the annual giving campaign. Each fall the association sponsors the Phonathon in which all alumni nationwide are contacted for pledges. Special charter travel and insurance programs are also available.

The Alumni Association is represented on the Board of Governors by a member who is elected to a term of two years. The president of the association also serves on the Board of Governors as an ex-officio member.

Members of the Alumni Board are elected for two-year terms. The council, numbering approximately 30 people, is an advisory board to the university on alumni relations. The primary objectives are to strengthen alumni relations and to promote communication between the alumni and the university as a whole. Members of the council are chosen by the board for one-, two- or three-year terms.

Athletics

William M. Leete, Jr., director

Recognizing the importance of a broad range of physical and emotional outlets to a well-balanced college experience, the University of New Haven seeks to involve the student on various levels of active participation in games and sports, as well as to provide an opportunity for community and student support for its varsity intercollegiate program.

Varsity Sports

During the fall, the university offers varsity cross country, football, soccer, women's tennis and volleyball. In the winter, men's and women's basketball as well as indoor track are the main attractions. During the spring, baseball, lacrosse, softball and outdoor track keep UNH athletic fields busy.

The athletic department coaching staff welcomes all interested candidates and invites active involvement in and support of its athletic programs.

The University of New Haven is a member of the Eastern College Athletic Conference, the National Collegiate Athletic Association, and the New England Collegiate Conference. Many of the Charger teams have national recognition throughout collegiate athletic circles. Our athletes have traveled to Seattle, Wash.; Springfield, Ill.; Riverside, Cal.; Daytona Beach, Fla.; and Phoenix, Ariz., among other sites.

Intramural Programs

The intramural department sponsors a variety of events for interested students throughout the year. Tournaments and competition in touch football, basketball, handball, softball, racquetball, tennis and volleyball are offered. Team rosters are available in the athletic office and schedules are posted in the gymnasium.

Athletic Facilities

The north campus consists of Robert B. Dodds Field (a multi-purpose natural surface field designed for football, soccer and lacrosse), six tennis courts, a softball field, a baseball diamond, an intramural field and a gymnasium.

The gymnasium houses two full-size basketball courts, a weight-training room, a steam room, a gymnastics area, a racquetball court and locker and shower areas for students and faculty.

A valid university ID card is required for admittance to the north campus gymnasium or tennis courts during free play hours. The gymnasium will open for free play at times when regularly scheduled games and varsity team practices are not in progress. Students should take care to secure their lockers or leave properly identified valuables with the equipment manager when using any facility.

While members of the university's athletic teams are covered under an appropriate insurance policy, students who participate in intramurals and free play are not covered by such a policy and participate at their own risk. The university recommends that students who plan to use any north campus facility for physical activity carry an appropriate insurance policy to cover medical costs in case of an injury.

Campus Store

Gerald Jeromski, manager

The university's campus store sells all necessary texts, new and used, required for courses at the university. It also carries school supplies, greeting cards, imprinted clothing, gifts, candy and a selection of paperbacks, newspapers and periodicals. The campus store buys back certain used texts throughout the year. It also handles class ring orders and film processing for the campus community.

Special arrangements are made for students taking courses at off-campus locations to purchase required books at or near off-campus centers.

Career Development Office

Charles A. Bove, director

This office offers employment-related services to the university community. Among these are career counseling, advising, on-campus employment interviewing and extensive information about job opportunities.

Administrative and recruiting offices are located on the third floor of the Student Services & Admissions Building.

Career Development

To assist students in making appropriate career choices, individual/group counseling is available and is supplemented by several office resources. Special workshops on resumé preparation, interviewing skills and job research techniques are scheduled in both the fall and spring semesters. A career guidance computer system is available as well as an audio and video tape program which provides assistance to students exploring careers.

In addition, the office maintains an extensive library of career information, vocational resources, brochures and annual reports.

A professional career testing service is also available for those students with questions about what career direction to pursue.

Student Employment

While the office is not an employment service and does not guarantee jobs, extensive listings of both full- and part-time positions are maintained to provide a common meeting ground for employers and prospective employees. Undergraduate and graduate students will find this useful, both in locating part-time and full-time jobs while in school, as well as employment following graduation. Alumni seeking positions are encouraged to use the services of the office.

Employers wishing to list positions need only call or write, giving a description of the position available and other details. There is no placement fee charged for these services.

Job Placement for Graduates

During each academic year, employer representatives visit the campus to interview graduating University of New Haven students, both at the graduate and undergraduate levels. In addition, representatives of a number of graduate schools visit to interview seniors interested in pursuing graduate education.

Information

Career Development regularly publishes and circulates a monthly campus recruiting schedule the first week of every month during the academic year. There is also a regular career development section published in the weekly student newspaper, *The News*. Information such as career development events, Career Days, workshops, seminars, recruitment visits, employment outlook for graduates, job listings, job search hints, etc., are included. Career development information also appears in *Insight*, the alumni publication.

The recruitment schedule will be mailed to any member of the university community who wishes it and provides the office with a supply of stamped, self-addressed envelopes for the number of months desired.

Counseling Center

Dr. Deborah Everhart, director

Individual counseling is offered to students for personal problems, for marital and domestic problems and for study and career choice problems. Students can get assistance for educational, vocational and general life problems.

A student who does not know where to go for help should contact the Counseling Center for information and direction.

The Counseling Center also offers psychological testing including vocational interest, personality assessment and academic placement. Students who are unsure of their academic skills or eventual career choice of life goals may request help in these areas.

As a service to first-semester seniors and members of the community who are planning to apply to graduate schools, a controlled testing center is maintained on campus. Arrangements may be made with the center for administration of the Miller Analogies Test and the forwarding of the score to the graduate school of the applicant's choice. All students wishing to take the Miller Analogies Test should contact the Counseling Center.

Developmental Studies Program

Dr. Nancyanne Rabianski, director

The Developmental Studies program is designed to strengthen the basic skills of entering students. Courses within the program are taught by members of the faculty of the mathematics department and the English department.

The English department offers three developmental courses: Reading Strategies, E 101; English Fundamentals, E 103; and Oral Exposition, E 114. The three courses offer students a comprehensive study of the basic reading, writing and speaking skills necessary in using our language effectively. Fundamentals of Mathematics, M 103, is taught by the mathematics department.

Placement in these courses is determined by examinations given by the respective departments. Such placement becomes a first priority for affected students because the university believes such students can become successful college students only upon correction of skill deficiencies.

Please note these special provisions concerning E 101, E 103 and M 103. E 101 is a non-credit course. E 103 and M 103 carry three college credits but cannot be applied toward students' degree programs. They usually meet for up to six hours per week to provide intensive help. At the conclusion of a semester, a student who has done outstanding work in E 103 may be nominated by his English instructor to take E 110 rather than E 105.

Complete descriptions of the developmental courses appear in this catalog as part of the course offerings of the mathematics department and the English department.

See also the section on the Learning Assistance Center.

Handicapped Services

George A. Schaefer, coordinator

Handicapped Services provides guidance and assistance to students with various handicapping conditions. The office also coordinates the university's compliance with section 504 of the H.E.W. Rehabilitation Act of 1973 and other governmental regulations. All inquiries and problems concerning barrier-free access to university facilities should be addressed to this office.

Health Center

Patricia Coleman, head university nurse

The University Health Center is open to all university students without charge. Located on the first floor of the dormitory, the center is staffed with nurses and an internist. Services available include first aid and examinations for injury and disease. The center is also a resource for information on medical questions and other medical facilities available in the community.

One part of the medical program is the weekly women's clinic which takes place at the health center with nurse practitioners from the Yale Nursing School.

Students are encouraged to inform the nurse of any medications they are taking or any medical problem they may have. This information is essential to medical care at the time of injury or illness, and it helps in providing personalized recommendations about preventive medical care and health maintenance.

Supplementary health insurance is provided for all full-time day students and is available for part-time students upon application and payment of a fee. Claim applications are available from the nurse.

Housing & Meal Plans

University Housing

Rebecca D. Johnson, associate dean for resident services

The character of residential living is often a good indication of the spirit and life on campus. For this reason the University of New Haven strives to make its residential facilities places which encourage academic pursuits, creativity and personal development.

On-campus university housing includes a traditional residence hall for freshman, with double bedrooms arranged in groups of six around a common living room and bath. Apartment-style living facilities are available for upperclassmen. All on-campus residences are furnished and include lounges and laundry facilities. Each university housing facility includes resident staff members and an active council of students who help to promote an atmosphere conducive for study and social development. All university housing is occupied on an academic year basis. Students who are permanent residents of New Haven County may apply for housing only with the special permission of the director of residential life.

All students living in the freshman Residence Hall are required to purchase a university meal plan; cooking is not allowed. Students in the upperclassmen residences have the option of taking a meal plan or providing for their own meals.

The Office of Residential Life maintains a listing of available off-campus housing. Because of the limited number of off-campus apartments available in the immediate area, the university is unable to guarantee off-campus accommodations. While university staff will be happy to discuss and advise students undertaking a lease with an off-campus landlord, the university cannot take responsibility for that lease. Students are responsible for any contract undertaken for housing and should carefully consider the nature of that contract and the responsibilities incurred.

Campus Dining Services

Geoffrey Ramsey, B.S., director

The Student Center houses three dining areas: "Mary's Place" snack bar and the Rathskeller are located on the main floor; a full menu dining commons and a meal plan dining room on the ground floor. Campus dining services are operated and managed by the university's School of Hotel, Restaurant and Tourism Administration.

Three meal plan options are offered. Purchasing a plan, while highly recommended for all students, is required for students living in the freshman residence hall. Meal plan contracts are available at the Student Center office.

Learning Assistance Center

Mr. Richard Farrell, acting director

The Learning Assistance Center, in the Main Administration Building, offers a tutoring service open to all students on campus, not just those in academic difficulty. The staff of instructors and student tutors provides individual tutoring in a variety of subjects such as mathematics, writing and computer science. All tutoring is free and no appointment is necessary. Daytime and evening hours are posted in the center. During the 1983-84 academic year, the Learning Assistance Center provided more than 3,000 tutoring sessions to undergraduate students.

See also the previous section on the Developmental Studies program.

International Students

Robert Chudy, director

The university has a large and active international student program with more than six hundred students from more than 70 countries. In addition to assisting students with immigration, academic and adjustment problems, International Affairs coordinates and plans various recreational and cultural activities throughout the year. The office, with the cooperation of the International Student Association, publishes a monthly newsletter.

Minority Student Affairs

Lesa Loritts, acting coordinator

The coordinator of minority affairs works closely with students, faculty and administrators in planning and implementing educational programs for the minority students. The office also provides academic and personal advising for students to ensure a smooth and healthy adjustment to the various demands of a university environment.

The minority affairs office also serves as a catalyst in building a support network between the community at large and the university. Even though the minority affairs office has a special interest in minority issues, all students are encouraged to take advantage of the financial, academic and personal advising.

Student Center

Rebecca Johnson, associate dean

The Student Center provides a focal point for all student activities. Offering lounges, student offices, a game room, a large cafeteria and a snack bar, the facility has been designed to serve as a center for the student's non-academic college interests.

The Rathskeller, also located in the Student Center, opens daily at 4 p.m. serving snacks and draft beer, in keeping with the minimum age restrictions under Connecticut law. Live entertainment and films are often presented in the Rathskeller on weeknights.

Veterans' Affairs

Karen Monteith, administrative assistant

The university maintains an Office of Veterans' Affairs with a full-time administrator. Liaison with state and local veterans organizations is maintained on a daily basis. The campus veterans' office provides a wide range of support services for veterans attending the university. Assistance is available in academic areas, and special help such as funding for tutorial assistance, readers for the blind and aid for the disabled is also available.

WNHU Radio

Rose Majestic, general manager

WNHU, the university's student-operated FM stereo broadcast facility, operates throughout the year on a frequency of 88.7 MHz at a power of 1,700 watts. This extracurricular activity, open to all university students, whether undergraduate or graduate, serves southern Connecticut with the best in music, news and community affairs programming. The WNHU broadcast day consists of locally produced shows as well as various programs provided by several public networks. In addition, WNHU is the only NBC affiliate in the New Haven county market.

All WNHU activities in programming, business and engineering operations are performed by students in the university's day, evening and graduate division. The station will train all qualified students in their respective areas of interest.

Women's Affairs

Rebecca Johnson, coordinator

Several women staff members, with the help of interested students, coordinate a variety of non-academic programs of special interest to women.

Among the programs that have originated through the office are the Women's Health Center, women's studies course offerings and group meetings of returning adult women.

Personal counseling is available at any time. The director of the student center and the assistant director of the counseling center serve as contact persons.

ADMISSION AND REGISTRATION

Patricia A. Hudson, dean of admissions services

The University of New Haven welcomes applications from men and women from all races, economic levels, religions and geographic areas.

Students wishing to take any course in the university, whether or not they seek a degree, must first satisfy the admission requirements and follow the admission procedures specified below. In general, all applicants must have graduated from an accredited secondary school or passed the state high school equivalency examination to be considered for admission.

International students must be proficient in English. Qualified international students who do not have adequate proficiency in English (normal guidelines are 500 TOEFL or 80 MTELP) are referred to the English Language Institute.

Students should note that the different schools of the university may have additional admission requirements which are discussed in detail in subsequent pages of this catalog.

You become a student of the University of New Haven only after you have completed the steps listed below under Admission Procedure, completed all financial aid arrangements, selected and registered for courses for your first semester, and made the appropriate tuition and fee payments.

Admission Procedure Day Division

1. Write or telephone the university for information or to arrange for an interview. Telephone (area code 203) 932-7319.
2. Secure an application form from the Admissions Office of the university or from your high school guidance counselor.
3. Submit the completed form with the non-refundable application fee.
4. Request your secondary school and/or college to forward an official copy of your academic transcript directly to the Admissions Office. If you are currently attending an educational institution and will be sending us an incomplete transcript, it is your responsibility to send us your final transcript as soon as it becomes available.
5. Arrange for results of Scholastic Aptitude Test (S.A.T.) or American College Testing Program (A.C.T.) examinations to be sent directly to the Admissions Office, or arrange to take the University of New Haven tests.
6. Make preliminary contact with the financial aid office to discuss possible financial assistance. The application for financial aid has no bearing whatsoever on whether or not a student is accepted to the university.
7. A decision on your application will not be made until we receive: your completed application, your non-refundable application fee, your high school and college (if applicable) transcripts, and your admission test scores.

Admission Procedure Evening Division

The procedure for admission to the Evening Division is very similar to the Day Division procedure. It is handled through the Office of the Division of Evening Studies and can often be accomplished in one visit. See the Division of Evening Studies section of this publication for more detailed information.

English Language Institute

Qualified international students who need or wish to improve the level of their English competency can study English at the English Language Institute. This option is available in particular to those who wish to apply to university degree programs, but need improved English skills. The ELI offers English-language training by a faculty of English-as-a-second-language specialists. Six intensive sessions are offered throughout the year, each seven and a half weeks long. The intensive program consists of daily classes in composition, reading and communication skills. Instruction in grammar, pronunciation and vocabulary is an integral part of all ELI courses. I-20's can be issued specifically for the purpose of coming to the ELI to study English. Certificates are awarded upon successful completion of each session.

Conditional Admission

There are a limited number of openings in the Day Division of the university for students who appear to have potential for success that has not been demonstrated. At the discretion of the dean of admissions services, such students may be granted conditional admission to the university.

Some students may be required to take certain courses designed to strengthen their foundation in basic skills and prepare them for regular college courses. See the developmental studies program on page 25 for more information.

Academic Credit

Academic credit is granted on a credit hour basis. In addition to successfully completing regular courses, students may earn credit by taking independent study, coordinated courses, crediting exams or CLEP exams or by transferring previously awarded credit from other institutions. These methods are detailed below or in the Academic Regulations section.

Advanced Placement

The university recognizes the program of advanced placement available to talented high school students operated by the College Entrance Examination Board. Students satisfactorily completing advanced placement courses in high school and the final examination prepared by the Educational Testing Service (E.T.S.) may be given appropriate college credit if their courses are similar to those offered at the University of New Haven.

Educational Testing Services Advanced Placement examinations are graded from 1 to 5. Credit is allowed where the grade earned is 3, 4 or 5. Students desiring to submit advanced placement courses for college credit should have all results of these courses and tests sent in with their application to Admissions.

The University of New Haven accepts credit by examination from the College Level Examination Program (CLEP). The passing percentile for CLEP and subject examinations is 50. Credit will be evaluated by the appropriate department chairman.

Transfer of Credit to the University

Students may transfer to the university after completing academic work at other institutions. Applications should be made to the dean of admissions. If feasible, potential transfer students should visit the university and discuss their transfer credit situation with the chairman or dean administering the curriculum of interest. Normally, the university accepts credit from regionally or nationally accredited colleges on an equivalency basis.

Students transferring from another institution must possess at least a 2.00 quality point ratio based on a four point scale. Credit is normally granted for those courses completed with at least a grade of **C**, or its equivalent. Credit transferred from a two-year institution is generally limited to 60 credit hours, unless otherwise approved in writing by the dean of the school in which student seeks to enroll.

Final decisions on transfer credit are made by department chairmen and must conform to school and university policies. Credit is not officially awarded until the student has completed at least 12 credits in good standing at UNH. Prospective students may be required to take qualifying or placement examinations for specific courses.

Plans of study for a University of New Haven degree should be agreed upon by both the transfer student and the department early in the first term of attendance in order to avoid course duplication and academic discontinuity.

Crediting Examinations

A student who has at least a 2.00 cumulative QPR and has independent knowledge of the content of an undergraduate course offered by the university may, with the approval of the respective department chairman and dean, take a special crediting examination in lieu of taking the course.

Students are reminded that they must earn at least 30 semester hours through regular course work if they are to meet the residency requirements for graduation.

Students may not take crediting examinations during the first or last semesters in which they are enrolled.

Freshmen Placement

Freshmen are placed in courses in English and mathematics according to their individual abilities as demonstrated through the university testing program or S.A.T. scores and high school records.

Some introductory mathematics and English courses include placement tests during the first week of school to ensure that students have been placed in courses consistent with their abilities.

Some students may be placed in courses designed to upgrade their skills in particular subject areas and prepare them for more advanced courses at the university.

Registration

Joseph Macionus, university registrar

Registration is the process of selecting classes each term. Registration includes faculty advising, a preliminary choice of classes (preregistration), and fee payment. Final registration is not completed without these steps.

Students have assigned faculty advisors who provide guidance on academic matters and help the students with the registration process. Normally, the advisor is the chairman or coordinator of the student's major course of study or another faculty member designated by the chairman.

There are two parts to registration: the completion of the registration forms and the payment of tuition. There is a penalty fee for delaying either of these two processes beyond the end of the registration period.

Registration dates and procedures for currently enrolled day students will be posted in advance. New students will receive registration procedures by mail. New students must register in person. A separate registration is required for each of the semesters, for summer sessions and for the winter intersession.

Social security numbers will be used on student records; students should be sure to bring their number when registering. Prospective students who do not have a social security number should apply for one before registration. Students from other countries who do not have social security numbers will be given a temporary number by the university; however, they are encouraged to apply for a social security number as soon as possible.

Students are urged to plan their programs carefully before completing the registration forms in order to avoid the need for requesting changes. Once the registration is completed, students are charged the change of registration fee for each change made. The fee is payable upon completion of the form requesting the change.

Please Note: No new student will be permitted to register for classes until:

1. The non-refundable acceptance fee has been paid.
2. Tuition **in full** for the semester has been received. Students relying on financial aid to cover all or part of a semester's expenses must present evidence of the amount of money awarded.

Course Overload Restrictions

Students who wish to register for more than 15 semester hours in any one semester must follow special procedures and guidelines unless their worksheets specifically require them to take more hours.

If the total number of semester hours to be attempted is from 16 to 19 and is in excess of the hours specified on the student's work sheet, the student must obtain written permission from his or her advisor and department chairman and, in most instances, must have a cumulative quality point ratio of 3.20 or higher.

If the total number of semester hours to be attempted is more than 19, the student must obtain written permission from his or her advisor and department chairman, academic dean, and the Provost's Office. Such students are required to have a cumulative quality point ratio of 3.20 or higher.

TUITION, FEES AND EXPENSES

The tuition and other expenses listed in this section reflect the charges for the 1984-85 academic year. The tuition charges for the 1985-86 academic years are expected to be higher than the charges listed in this section.

Day Division students taking courses offered during the evening will still pay the Day Division tuition rate for the first 18 credits per semester. Evening Division students may take one course offered during the day at the Evening Division tuition rate.

Undergraduate Day Division 1984-85

Application Fee $25
Payable with student's application to the university.

Acceptance Fee $50
Payable by all new students (incoming freshmen, transfer and former students) upon notification of acceptance, not refundable.

International Students Fee $200

Tuition, 1984-85, Full-time Students	**Per Semester**	**Per Year**
Full time students taking 12-18 credit hours.	$2,750	$5,500
Students taking less than 12 credit hours, tuition per credit hour, $183		
Students taking 19 or more credit hours, additional tuition for each credit hour over 18, $123		
Student Activity Fee	$ 55	$ 110
Total tuition and fees	**$2,805**	**$5,610**

Note: The student activity fee is distributed by the Day Student Government and covers the cost of student-supported services such as the newspaper and radio station and helps defray the expenses of clubs, organizations, social activities, etc.

Registration Late Fee $25

Late Payment Fees

Assessed for failure to complete payment of tuition, meal plan or residence charge by due date listed on academic calendar in this catalog. $35

Additional fee for failure to complete payment of tuition, meal plan or resident charges by the first day of classes. $15

Additional fee of 1½ percent per month on the unpaid balance after the first day of classes.

Undergraduate Evening Division 1984-85

Application Fee
Payable with the student's application to the university, not refundable. $10

Tuition, 1984-85
Evening students taking up to 11 credit hours, per credit hour. $123

Tuition Late Fee
Fifty percent of the tuition for an Evening Division student is due when registering, the other 50 percent due by the first day of class. After this, the student must pay 1½ percent per month on the unpaid balance. $25

Tuition for Summer Session and Winter Intersession
All students, both day and evening, pay per credit hour for summer session and winter intersession courses. $123

Tuition, UNH in Southeastern Connecticut
Students at UNH in Southeastern Connecticut are part of the Evening Division and pay per credit hour. $123

Other Fees

Change of Registration Fee
Assessed for each course or section addition after the completion of registration. $5

Laboratory Fees
Payable each semester by students registering for courses requiring the laboratory fee as listed in the catalog. Non-refundable fees are announced in printed course schedules in advance of each semester.

Computer Use Fee
Dependent upon amount of use, a fee will be charged for computer use to students who are not enrolled in a computer laboratory course. $15-90

Make-up Test
Assessed when a student is permitted to make up an announced test. $7

Make-up Examination
Assessed when a student is permitted to take an end-of-semester examination at a time other than the scheduled time, except for conflicts caused by the examination schedule. $10

Co-op Program
Students participating in the university's Cooperative Education program pay a continuing registration fee for semesters during which they work. $100

Crediting Exam
Assessed when a student is permitted to take crediting examination. $75

Auditing a Course
Students pay the same tuition and fees for auditing a course as they pay when the course is taken for credit.

Graduation
Assessed regardless of participation in exercises; no reduction will be made for non-attendance. For graduation in June, the fee and graduation petition are due no later than March 1 of the year of graduation; for January commencement, the fee and graduation petition are due before October 15 of the prior calendar year. Failure to meet the deadline date will result in a late charge of $25 in addition to the normal graduation fee, to be paid if there is sufficient time to process the graduation petition. If processing is not possible, graduation will be postponed to the next award date. $35

Transcript of Academic Work
No charge for first copy; thereafter, per copy. $4

Payments

Tuition, fees and other charges are payable when due. Checks or money orders should be made payable to the University of New Haven. There is a penalty charge of $7 per check for all checks returned by the payor's bank.

As a convenience to those who desire to spread their payments out over the period of a semester, a deferred payment bank loan plan is available to full-time students and to part-time students carrying six or more semester hours or the equivalent. Details and forms for this plan are available at the Business Office.

Application for this plan must be made prior to the first day of each semester.

The university withholds all issuance of grades, the awarding of diplomas, the issuance of transcripts, and the granting of honorable dismissal to any student whose account is in arrears.

Refund of Tuition

Any student under the age of 18 must have the written consent of a parent or guardian to withdraw from the university with an indication to whom any refund, if applicable, is to be paid.

Tuition is refunded or cancelled according to the scale below upon receipt of formal withdrawal request before the end of the fourth week of a semester.

	1st	Week — 80%
	2nd	Week — 60%
	3rd	Week — 40%
	4th	Week — 20%
After the	4th	Week — 0%

A prorated credit toward the following semester or refund may be awarded, subject to the decision of the Committee on Withdrawals, in situations involving the death or protracted illness of a student, involuntary induction into military service, other clearly extenuating circumstances, or in the case of part-time students, transfer or change of work initiated by employer that precludes meeting class schedules.

All request for refunds must be made in writing before the close of the semester of withdrawal, and must include necessary documentation. The university assumes no responsibility beyond the foregoing for withdrawal occasioned by the pressures of family life or occupation.

Summer Sessions and Intersession

In cases of withdrawal from a course or courses within the first week of each term, a refund of 50 percent of tuition is made. There is no refund of summer or intersession tuition after the first week.

The foregoing policy is intended to protect the university, since the university plans its expenses and bases its budget upon full collection of tuition and fees from all registered students, and assumes the obligation of supplying instruction and other services throughout the year.

Changes in Arrangements

The university reserves the right to make, at any time, whatever changes in admission requirements, fees, charges, tuition, instructors, regulations and academic programs it deems necessary prior to the start of any class, term, semester, trimester or session. The university reserves the right to divide, cancel or reschedule classes or programs if enrollment or other factors so require.

FINANCIAL AID

James T. Anderson, director

More than two-thirds of the students at the university receive financial assistance annually in the form of scholarships, grants, loans and work-study programs.

Usually, financial aid is not available for the summer term. Ordinarily, students needing assistance will seek employment during the summer to help meet their expenses for the following year. Only U.S. citizens and eligible non-citizens qualify for financial aid.

To qualify for financial aid, or to have financial aid continued, a student must maintain "satisfactory progress" as defined elsewhere in this catalog. The Financial Aid Committee will review the records of students not maintaining satsifactory progress at the end of each semester to determine whether aid should be discontinued. Appeals concerning financial aid for extenuating circumstances may be sent in writing to the attention of the committee.

To apply for financial aid, students must do the following:

1. **Complete the university financial aid application form available from the financial aid office and return it to the director of financial aid.**
2. **Obtain a copy of the College Scholarship Service (CSS) Financial Aid Form (FAF)** from their guidance office or the university Financial Aid Office. This should be submitted to the College Scholarship Service after January 1 identifying the University of New Haven to receive a copy of the analysis. The university's CSS Code is *3663*.
3. **Indicate on the FAF that they are applying for the Pell Grant (formerly the Basic Education Opportunity Grant or BEOG).** All aid applicants are required to apply for assistance from this federal program. A Student Aid Report (SAR) will be sent to students from the Pell Grant program office. All three copies of the report must be furnished to the university financial aid office *whether* or *not* the applicant is eligible for an award. Students applying to other colleges may submit a photocopy of the Student Aid Report to determine the amount of the award on a preliminary basis.
4. Submit **signed** copies of the student's and parents' complete income tax returns from the most recent tax year to the Financial Aid Office. Be certain to include all schedules. If the student or parents did not file an income tax return for the most recent tax year then they must sign a "Non-Tax Filer's Form." These forms may be obtained by contacting the Financial Aid Office.

The university financial aid application must be submitted to the Financial Aid Office and the Financial Aid Form sent to the College Scholarship Service by April 1 for returning UNH students and May 1 for new students. Applications received after these dates will only be acted upon if funds remain available. All transfer students must submit a financial aid transcript from all colleges previously attended regardless of whether or not they received aid. Forms are available at the UNH Financial Aid Office.

Please remember that the four steps above must be completed in order to be considered for financial aid. Incomplete applications cannot be considered.

When the financial aid application is completed (and, in the case of new students, when the student has been accepted for admission), the Financial Aid Committee will review applications for eligibility. Eligible

students will receive an offer of an award including the type and amount of aid. Students should read the award letter carefully as it gives the terms and conditions of the financial assistance offered. Those not eligible for aid will also be notified.

Budgets

The following are actual budgets for undergraduate students for the nine-month academic year prepared by the financial aid office for the 1983-84 academic year. Individual budgets may vary depending upon circumstances.

Dependent Students (nine-month budget)

	Resident	Commuter
Tuition	$5,500	$5,500
Student Activity Fee	110	110
Books and Supplies	240	240
Home Maintenance*	—	1,210
Room, approximate	1,770	—
Board, approximate	1,290	—
Travel**	100	580
Personal	500	500
	$9,294	$8,140

*Estimated expenses of student living at home.

** Travel allowance for resident students is an average figure covering two round trips to home in an academic year, adjusted for individual situations. Commuter allowance based on average travel costs for the academic year for student living approximately 12 miles from UNH, adjusted for distances less than or greater than 12 miles.

Independent Self-Supporting Students (12-month budget)

	Single	Married
Tuition	$4,998	$4,998
Student Activity Fee	110	110
Books and Supplies	240	240
Independent Student Allowance	5,260	7,060
	$10,608	$12,408

Additional Costs: Children (1) $2,250. (2) $4,050.

Scholarships & Awards

Academic Scholarships

A number of university scholarships are awarded each year on the basis of academic achievement.

Donor Scholarships

Many scholarship awards are available each year through the generosity of business firms, organizations and friends of the university. Scholarships marked with an asterisk (*) require special application procedures. Contact the financial aid office for more information.

***Alumni Scholarship**—An annual award of $1,000 is designated for the son or daughter of one of the alumni of the university. Selection will be made by the Financial Aid Committee after a review of applicants. This award is given on a one-year basis and is not renewable.

Amity Charitable Trust Fund—An annual award is made from the income of this fund to worthy students, based on ability, promise and financial need without regard to sex, race, country of national origin or religion. Preference is given to students whose homes are in the greater New Haven area.

The Barn Sale (Inc.) Scholarships—Annual awards will be made on the interest from this fund to help disabled, handicapped scholars who have passed their freshman year.

Bic Pen Company Scholarships—Awards of approximately $500 each are made annually based on financial need, scholarship, and other aid. Preference is given to students from the Milford area.

Bozzutos Charity Sports Classic Scholarship Fund—The interest on this fund is awarded annually to a needy student with good academic standing.

Carmel Benevento Memorial Scholarship—This scholarship is awarded annually to a woman entering the university as a freshman. The award was established in memory of Carmel Benevento. Selection is based on need and outstanding academic or creative ability.

Clarence W. Dunham Scholarship—An annual award is made to a civil engineering student after completion of the freshman year. Applicants must be recommended by the dean of engineering and the chairman of civil engineering.

Chesebrough-Pond's Inc. Engineering Scholarships—These scholarships are designated for students in the field of engineering. Preference is given to U.S. citizens and minority students. High academic ability and promise are prime considerations.

***Eder Brothers, Inc.**—Annual awards to hotel management, tourism and travel students in the hotel/restaurant management program who have an interest in food and beverage management. Awards are made in the amounts of $500 to a full-time day student and five $100 awards to part-time evening students.

Enthone Scholarship—An award of $1,200 is given annually to a junior or senior in the field of chemistry. The recipient must be a citizen of the United States. Selection is based on activities as well as scholarship.

Ernst & Whinney Scholarship Foundation—Annual awards are made to junior and senior students majoring in accounting. Selection is by the department based on academic achievement.

H. B. Ives Company Scholarship Foundation—An annual award of $500 is made to a male undergraduate seeking a degree in engineering, business administration or management. The recipient must be a resident of New Haven County.

H. H. Brown Shoe Company, Inc.—This scholarship is offered on an annual basis to a junior or senior in business administration or economics. Academic record and financial need will be considered in selection of the recipient.

The Martin Luther King Jr. Memorial Scholarship Fund—Annual awards are available to students entering the University of New Haven who exemplify the ideals of the late Dr. Martin Luther King, Jr.

M. K. Peterson Scholarship—An annual scholarship award is made in the name of our former president, Marvin K. Peterson. The award is from the income of a gift from the Connecticut Savings Bank for this purpose. Preference in selection of the recipient is given to sons and daughters of C.S.B. employees.

National Association of Accountants, New Haven Chapter—A scholarship is awarded annually to an accounting student entering second-year studies. Selection is restricted to students living in the greater New Haven area, and is based on academic record and need.

***National Institute for the Food Service Industry**—The Golden Plate and Heinz Scholarships are available to outstanding students in the School of Hotel, Restaurant and Tourism Administration based upon need and ability.

New Haven Water Company—An annual scholarship is awarded to a student from the inner city of New Haven. Selection is made on the basis of financial need and potential for academic success in a college program.

Paul Kane Memorial Scholarship—Award is made annually to a scholar-athlete in memory of Lieutenant Paul Kane, U.S.N., a former student at the university and captain of the hockey team. Lieutenant Kane, a pilot in the U.S. Navy, was killed in a crash in the Pacific Ocean in 1974.

Sawhney Scholarship—An annual scholarship to be awarded to the graduate from Amity High School with the highest grade point index who applies to the School of Business in business administration. Student receiving the scholarship must maintain a **B** average to retain the scholarship on a annual basis.

Southern Connecticut Gas Company Scholarship—A scholarship is sponsored by the Southern Connecticut Gas Company. This award is made annually to an inner-city resident of New Haven meeting need and academic qualifications.

Southern New England Telephone Company Aid to Scholars—Annual awards are made available to entering freshmen from Connecticut through this scholarship program. Selection for this assistance is based on financial need and academic record.

***Statler Foundation**—The foundation makes annual awards to deserving students in the School of Hotel, Restaurant and Tourism Administration.

Virginia M. Parker Scholarship—Established by Chi Kappa Rho Sorority, it is awarded annually to a freshman woman selected on the basis of scholarship, potential and financial need.

Wallace Silversmiths Division of HMW Industries—A $1,500 annual scholarship award is available to a financially disadvantaged minority student majoring in business administration.

William T. Morris Foundation—Annual awards totalling $20,000 in recognition of outstanding academic achievement are awarded on the basis of financial need.

***Yale University**—The scholarship plan for children of faculty and staff members of Yale University provides scholarship grants to qualified students.

Other scholarships of a restricted nature are also available to qualified students.

Annual prizes include the Freshman Prize and the Nordlund Cup, awarded to an outstanding business major.

Grants

The University of New Haven awards grants to students who have demonstrated academic promise and financial need, and who have contributed to some area of university activity.

Two federal and two state grant programs are also open to University of New Haven students.

Pell Grant (formerly BEOG)—Designed to assist needy students entering postsecondary education. Students apply on the Financial Aid Form (FAF) or directly to the program offices; information and application forms are available at high school guidance offices or at the university financial aid office. All university financial aid applicants are required to apply for a Pell Grant as a part of their university aid application. Awards under the Pell Grant program are presently authorized to a maximum of $1,900.

Supplemental Educational Opportunity Grants (SEOG)—Designed to assist needy students after consideration of other aid available. Awards of $200 to $2,000 may be made annually under this program to students in good standing who are making satisfactory progress toward graduation.

Grants to Connecticut Residents—By act of the Connecticut General Assembly, funds have been made available to assist state residents attending private colleges within the state. In 1983-84 approximately 700 awards were made to students at the university who had financial need. Awards ranged from $200 to $1,725. Eligible students are considered for these awards on the basis of their university financial aid application.

Connecticut Supplemental Grants—Additional funds are awarded to needy Connecticut students attending the university through this program which is similar to the federal SEOG. The maximum award is $1,500 per year. Recipients are selected by the Financial Aid Office.

Many students at the university receive scholarships and grants from various programs in other states including Pennsylvania, Rhode Island, Vermont, Maine, Massachusetts, Maryland, New Hampshire, and the District of Columbia. There are many other organizations and companies offering scholarships and grants. Entering students should explore such opportunities for assistance with the guidance offices of the schools they are currently attending.

Loans

National Direct Student Loans—This federal program was established by the Higher Education Amendments of 1972 replacing the former National Defense Student Loan program. Funds are available for loans of up to $1,500 annually to needy students with satisfactory academic records. Loans are repayable starting six months after graduation at five percent simple interest.

Guaranteed Loans—The State of Connecticut and many other states have established higher education loan programs offering long-term loans at low interest rates. In Connecticut, a student may borrow up to a maximum of $2,500 for each academic level, repayable starting after graduation. Federal interest benefits cover full interest while in attendance. Applications are available at any lending institution.

PLUS Loans—Parents may borrow up to $3,000 per year to a total of $15,000 for each child who is enrolled at least half-time and is a dependent undergraduate. In some cases an independent undergraduate may also borrow under the PLUS program. A borrower must begin repaying a PLUS loan within 60 days. Contact your lending institution for an application and further information.

Additional Loans—Loan assistance to students in temporary financial difficulty is available through the C. L. Robertson Emergency Loan Fund. This fund is administered by the financial aid office.

Student Employment

College Work-Study Program—A federal assistance program designed to enable students having financial need to work both during the summer and through the school year, thus earning a substantial portion of their college expenses. Work assignments are made on campus and also with public and private non-profit agencies.

Bursary Work—The university provides many jobs on campus for deserving students who meet the criteria set by the Financial Aid Office. Students must submit a financial aid application in order to be considered for bursary awards.

ACADEMIC REGULATIONS

Academic Honesty

Academic dishonesty is not tolerated at the University of New Haven. All students are responsible for reading and understanding the statement on academic honesty in the student handbook.

Violation of university standards for academic honesty, including plagiarism, will be a sufficient reason for an F in the course and will be reported to the dean of student affairs and services. A second violation may be cause for expulsion from the university.

Plagiarism is defined as the unacknowledged use of another person's work or the submission of the same work for more than one course without expressed written permission in advance.

Attendance Regulations

Every student is expected to attend all regularly scheduled class sessions. Specific course attendance guidelines are established by the academic departments or each individual faculty member.

From time to time, it may become necessary for the university to compile attendance records for every course in order to meet the needs of regulatory agencies, accrediting bodies or for other purposes.

A maximum of two weeks of absences will be permitted for illness and emergencies. The instructor has the right to dismiss from the course any student who has been absent more than the maximum classes allowed. Please refer to the student handbook for further clarification of attendance requirements.

Advanced Study

Advanced study courses are offered to qualified students in the departments offering the degrees of bachelor of science or bachelor of arts. These courses may include a thesis, tutorial work or independent study which permits the student to work intensively in areas of special interest.

Class

In order to be classified as a sophomore, a student must have completed 27 credit hours in an approved program; a junior, 57 credit hours; a senior, 87 credit hours; a fifth-year student, 117 credit hours.

Changing a Major

Students wishing to make a change in major or program must meet with the chairman of the department into which they wish to transfer. In consultation with the student, the chairman will prepare a change of major form and forward it to the Registrar's Office.

Coordinated Course

Courses taken by matriculated UNH students at regionally or nationally accredited institutions may be designated as "coordinated courses." Credit for such courses is accepted and posted on the students' permanent records and the grades are included in the students' quality point ratios.

Prior authorization for a "coordinated course" designation must be obtained from both the departments housing the student's major and the analogous course at UNH. The appropriate form must be obtained at the Registrar's Office, approved, and returned to that office before

the course in question begins. Normally, approval is only granted for those courses which are analogous to courses offered at UNH and/or are standard courses in a given discipline and which are unavailable at UNH because of frequency offerings, cancellation, etc., or inaccessible to the student because of temporary residency at a distant location.

Courses Available at Other Colleges

University of New Haven students interested in taking courses at other colleges and universities should discuss this matter directly with their departments and consult the statement of policy established by the undergraduate school in which they are enrolled.

Dean's List

The dean's list honors students who demonstrate excellence in their academic performance. Full-time students who earn a quality point ratio (QPR) of 3.50 or better in any one semester will be appointed to the dean's list for that semester.

Part-time students who have accumulated a minimum of 14 credit hours of course work at the university will automatically be considered for the dean's list at the end of each semester. A cumulative quality point ratio of 3.50 or better is required.

Dropping/Adding a Class

Students who wish to make a change in class schedule must complete a "Drop Slip" or an "Add Slip" or both. These are available from the Registrar's Office. A fee will be charged for adding courses after the announced deadline.

The last date to add classes is one week into the semester, and is listed in the academic calandar. No classes may be added after this date without special approval from the instructor, the department and the dean. All changes should be completed prior to the second week of class so that students may be properly registered in the correct sections.

Full-time Students

Full-time student status is attained by registering for a minimum of 12 credits per semester, or equivalent term, on either a matriculated or non-matriculated basis. Such status is continued to a succeeding term provided a minimum of 12 credits are completed in the term of record. Completion is defined as receipt of a letter grade of **A**, **B**, **C**, **F**, **S** or **U**; other letter grades do not signify course completion.

Full-time students are eligible for all daytime student activities and benefits, and are subject to Day Division tuition charges and other relevant fees. It is assumed that full-time students will select the great majority, if not all, of their courses from Day Division schedules, unless needed courses are unavailable in the Day Division.

Grade Reports

Reports of the final grade in each subject will be mailed to the student soon after the close of each semester. The university will release grades to a student's employer upon request, but only if the student has given prior authorization.

Grading System

The following grading system is in use and, except where otherwise specified, applies both to examinations and to term work. The weight of a final examination grade is a matter individually determined by each instructor. See Quality Point Ratio section following for additional information.

A — Superior
B — Good
C — Fair
D — Lowest passing grade.
F — Failure or withdrawal after the first half of the semester with unsatisfactory work.
I — Incomplete. Indicates one of the following two possibilities:
1. Some work remains to be completed to gain academic credit for the course. An I is assigned in the first instance at the discretion of the instructor. This assignment shall not be automatic but shall be based upon an evaluation of the student's work completed up to that point and an assessment of the student's ability to complete course requirements within the allowed time limit. Work to remove an I must be performed within the 12 months following the last day of the semester in which the I is incurred. When such work is completed, the instructor will assign a final grade for the course.
2. The student has failed to complete unfulfilled academic assignments within the specified twelve months, and the grade of I has been entered on the student's permanent transcript. **No further opportunity to complete the course will be available to the student after this time.**

W — Withdrawal. Indicates withdrawal from the course after the first half of the semester with satisfactory work in the course up to the time of withdrawal, or withdrawal from the university after the twelfth week of classes. The grade of W will not be assigned to any student who has taken the final examination in the course.
S — Satisfactory. Given only in non-credit courses.
U — Unsatisfactory. Given only in non-credit courses.

Graduation

Matriculated students are required to petition the registrar for graduation in the term immediately preceding their anticipated commencement. Forms, schedules and graduation fees are published each term by the Registrar.

Graduation is not automatic. Petitions, once filed, ensure that a student's record will be formally assessed in terms of degree requirements, and that it will be submitted to the faculty and the Board of Governors for final approval. A petition may be denied by the Registrar if graduation requirements are not met. If a petition is approved, a degree will be awarded at the appropriate commencement.

A degree will be conferred by the Board of Governors when a student has satisfied all program requirements and has met the following university requirements:

1. successfully petitioned the registrar and paid all graduation fees;
2. earned a cumulative quality point ratio of no less than 2.0 in all courses applicable toward the degree.
3. earned a cumulative quality point ratio of no less than 2.90 (or higher if required by individual department) in all courses in the student's major field of study;
4. been recommended by the faculty;
5. met all financial and other obligations and conformed to any local, state or federal law concerning graduation, and;
6. met the residency requirements of the university.

Honors

Honors may be conferred upon candidates for graduation according to the following standards:

1. An associate degree **With Honors** is awarded to students who have a quality point ratio of 3.25 for the credit hours specifically required for the degree program from which they are being graduated and who have taken 30 or more hours of required work at this university.
2. An associate degree **With High Honors** is awarded to students who have a quality point ratio of 3.50 for the credit hours specifically required for the degree program from which they are being graduated and who have taken 30 or more hours of required work at this university.
3. The bachelor's degree **Cum Laude** is awarded to students graduating with a cumulative quality point ratio of at least 3.50, who have taken 60 or more credit hours of required work at this university and who have completed all the suggested courses within their curriculum.
4. The bachelor's degree **Magna Cum Laude** is awarded to students graduating with a cumulative quality point ratio of at least 3.70, whose quality point ratio in all courses counting toward their major is at least 3.70, who have taken 60 or more credit hours of required work at this university, and who have completed all the suggested courses within their curriculum.
5. The bachelor's degree **Summa Cum Laude** is awarded to students graduating with a cumulative quality point ratio of at least 3.90, whose quality point ratio in all courses counting toward their major is at least 3.90, who have taken 60 or more credit hours of required work at this university, and who have completed all the suggested courses within their curriculum.

In determining eligibility for degrees with honor transfer credit, credits earned by crediting examination and electives in excess of those required will not be considered. Only the cumulative quality point ratio for courses completed at the University of New Haven is considered in determining a student's eligibility for honors.

Independent Study

In all courses of independent study, including internships, case studies, reading programs, practica, theses and work-study experiences, the student and an adviser must jointly file a project outline with the registrar within four weeks of the beginning of the course. This outline shall serve as the basis for determining satisfactory completion of course requirements. In the case of intensive or condensed course work, project outlines must be filed at least one week prior to the last day of the session.

Normally, independent study is restricted to no more than six credits and only open to seniors, juniors and exceptionally qualified sophomores. Students must have at least a 3.0 quality point ratio.

Regularly scheduled courses, that is, those offered at least once every four semesters, are not normally acceptable as independent study.

Leave of Absence

Baccalaureate students who are in good standing may interrupt continuous enrollment by electing to take a leave of absence from the university. The purpose may be for personal reasons, to pursue a program of study at another institution, or to engage in other off-campus educational experience without severing their connection with the University of New Haven through withdrawal. Before taking a leave of absence, students are encouraged to discuss their particular situation with an academic adviser, the dean of their school, the dean of student affairs, or a counselor in the Counseling Center. The following rules are in effect:

- A student must secure the approval of an academic dean or the dean of student affairs on the leave of absence form.

- If the leave is approved by a dean, the form is filed at the Registrar's Office on or before the last day of the semester preceding the start of the leave.
- Leaves are not required or granted for summer periods alone.
- Normally, leaves are not approved for a period longer than two semesters, or for one year. Under special circumstances, a leave of absence may be approved to a maximum of four semesters, or two years.
- A student who has withdrawn as a degree candidate is not eligible for a leave of absence. A student who has been dropped or dismissed from the university is not eligible for a leave of absence until properly reinstated. If a student withdraws while on a leave of absence, the leave is invalidated.
- A student who fulfills the conditions of an approved leave of absence may register upon return without applying for readmission, and the student may preregister for the returning semester.
- If a student desires to return later than the semester agreed upon on the leave of absence form, the person must make application for readmission through the Admissions Office.
- A student who plans to enroll for course work at another accredited institution during a leave of absence should review program plans with the dean of his or her school to verify the eligibility for receiving credit at the University of New Haven.
- Before beginning a leave of absence, a student is responsible for clearing with other appropriate offices, such as Financial Aid, the Bursar, etc. A student on leave may not carry an outstanding balance at the university.
- If the leave of absence is desired because of medical reasons, a note supporting the leave is required from a doctor. A doctor's clearance is required when the student wishes to return to the university at the end of the leave.

Make-up Policy

Make-up examinations are a privilege extended to students at the discretion of the instructor, who may grant make-up examinations to those students who miss an examination as the result of a medical problem or a personal emergency. On the other hand, the instructor may simply choose to adopt a "no make-up" policy. If an instructor does choose to offer a make-up test, he/she has two options: 1) to use university proctors, in which case the student must pay a make-up exam fee of $7 for regular semester examinations and $10 for final examinations; 2) to make private arrangements to offer the examination, in which case the make-up exam fee is charged at the instructor's discretion.

Matriculation

Matriculation is the formal act of registering to study for a specific degree offered by the university. Matriculation is, therefore, not automatic. A student must request matriculation by seeking admission to a specific university degree program. Formal acceptance into a degree program shall constitute the granting of matriculation.

Students seeking credit to be transferred to another institution, or who wish simply to audit courses or to take them without working toward a degree, need not matriculate. Non-matriculated students must register to take their chosen courses, however, and will be allowed to enroll in courses only as space permits. It is the student's responsiblity to seek matriculation should he or she later decide to pursue a University of New Haven degree.

Probation and Dismissal

Failure to maintain satisfactory progress as defined below will place students on academic probation for the following semester of enrollment. Students are automatically dismissed when they receive a third probation or when their quality point ratio for any one semester is less than 1.0.

First-semester freshmen earning a quality point ratio less than 1.0 are automatically referred to the Academic Standing and Admissions Committee which may specify conditions for continued enrollment. A record of committee action shall appear on the student's permanent record. Committee decisions are normally viewed as final, and may be reversed only by the provost or president of the university.

Academic probation of transfer students is determined in accordance with the same, graduated, minimum cumulative quality point ratio scale as for non-transfer students detailed above. In determining a transfer student's academic standing, the student's total semester hours completed—those received at other colleges plus those received at the University of New Haven—are applied to the minimum cumulative quality point ratio scale.

Students who are dismissed will be notified by the registrar immediately after the action is authorized by the Committee on Academic Standing and Admissions.

The student may appeal the action by formally reapplying to the dean of admissions with letters stating all reasons or extenuating circumstances that would justify the reversal of the dismissal. The Academic Standing and Admissions Committee will review appeals. If the appeal is denied, students are not responsible for tuition following dismissal. Students may reapply after one semester.

See the following section on "Readmission."

Quality Point Ratio

The academic standing of each student is determined on the basis of the quality point ratio earned each semester. The quality point ratio is determined by using the quality points assigned to each student's grade.

To determine the total number of quality points earned during a semester, each letter grade is assigned a quality point value:

A — four quality points
B — three quality points
C — two quality points
D — one quality point
F — zero quality points
I — zero quality points
W— zero quality points
S — zero quality points
U — zero quality points

The quality point value for each grade earned during a semester is multiplied by the number of credit hours assigned to that course as listed elsewhere in this catalog. The sum of these points is the total number of quality points earned during the semester.

This sum is divided by the number of credit hours completed (hours from courses with grades of **A**, **B**, **C**, **D**, **F**, **S** or **U**) to obtain the quality point ratio.

The cumulative quality point ratio is obtained by calculating the quality point ratio for all courses attempted at the University of New Haven.

See the previous "Grading System" section for more information.

Readmission

Application for readmission after students have been dismissed normally will be considered only after the lapse of a semester and only when students provide evidence which indicates probable success if readmitted.

Unusual circumstances may permit earlier application if a student's dean and department chairman successfully petition the Academic Standing and Admissions Committee to review the applicant's case.

Requests for readmission should be submitted in writing to the director of admission for transfer to the chairman of the Academic Standing and Admissions Committee at least three weeks before the opening of the semester, and should include evidence supporting the student's belief that he or she will succeed if readmitted.

A student who has been absent from the university for one or more semesters must submit a new application and pay another application fee. If the student has attended another college or university an official academic transcript is required from that institution. Following the receipt of the above material, action will be taken on the application for readmission.

Readmission is not automatic. The Academic Standing and Admissions Committee reviews each application and makes a decision on acceptance, rejection or conditional acceptance of students.

Repetition of Work

A course which a student has completed may be repeated only with the consent of the chairman of the department in which the course is listed. If a student achieves a higher grade in the second attempt, that grade rather than the first will be used to compute the cumulative quality point ratio. However, both the higher and lower grades in the course remain in the student's permanent record.

Residency Requirements

The residency requirements of the university is 30 credit hours taken at West Haven or at one of the university's off-campus centers. This requirement applies to all degrees, undergraduate and graduate.

To ensure depth of study, the residency requirement must include 12 credit hours of work in the declared major for an associate degree, and 18 credit hours for a bachelor's degree. Exceptions may be granted only by the dean administrating the major.

Satisfactory Progress

For a student matriculated in the Day Division, satisfactory progress toward a degree is defined as successful completion of 24 credits applicable to that degree program during an academic year. This should include registration for at least 12 credits per semester and successful completion of at least nine credits per semester. "Completion" is defined as the receipt of a final letter grade (**A** to **F**) but not the receipt of a Withdrawal (**W**) or an Incomplete (**I**). "Successful completion" is defined as the receipt of a passing letter grade (**A** to **D**). Decisions on student status are made by the university registrar.

Students are required to maintain a minimum cumulative quality point ratio in accordance with the following scale:

Quality point ratio of 1.50 for 3 to 30 credit hours attempted
Quality point ratio of 1.60 for 31 to 45 credit hours attempted
Quality point ratio of 1.70 for 46 to 60 credit hours attempted
Quality point ratio of 1.80 for 61 to 75 credit hours attempted
Quality point ratio of 1.90 for 76 to 90 credit hours attempted
Quality point ratio of 2.00 for 91 or more credit hours attempted

Appeals involving extenuating circumstances may be addressed to the chairman of the Faculty Senate for resolution by appropriate Faculty Senate committees.

Transfer of Credit from the University

Credits may be transferred from the University of New Haven, a fully accredited university, to any other college or university merely by obtaining a letter of authorization from the school to which the transfer of credit is desired.

Withdrawal from a Class

Students desiring to **withdraw formally from a class** may do so before the last day to drop courses published in the academic calendar. Formal withdrawal removes the student's name from class roll and removes the course listing from the student's record and transcript. The student must obtain a "Drop" card from the Registrar's Office, complete it and sign it. Signatures of the instructor and the student's academic adviser must be obtained. The card is then returned to the Registrar's Office.

Students withdrawing from a class after the last day to drop courses will receive either a grade of **W** or **F**. The grade assigned by the instructor will depend on whether or not the student's work in the course has been satisfactory up to the time of withdrawal. If a grade of **W** is assigned, it will appear with the course name on the student's record and transcript.

Filing a "Drop" slip does not qualify the student for cancellation of any university tuition or fee.

Withdrawal from the University

Students desiring to **withdraw from the university** must complete the necessary form at the Counseling Center and notify each of their instructors. It is the student's obligation to complete this formal procedure. Failure to do so leaves the student liable for all of the current semester's tuition and fees, and may result in grades of **F** being assigned in the student's courses.

Formal withdrawal must be completed during the first four weeks of the semester in order to obtain any cancellation of tuition and fees (as described in this catalog.

Formal withdrawal which is completed at any time **during** the first twelve weeks of the semester will assure that the student's transcript will contain no record of courses attempted or grades received during that semester.

Formal withdrawal which is completed **after** the twelfth week of the semester will result in the receipt of the grade of **W** for all courses in which the student is registered at the time of withdrawal. Students should note that formal withdrawal after the twelfth week cannot be regarded as complete unless, in addition to the above requirements, it has been approved by the Provost's Office.

Because of the serious ramifications of formal withdrawal from the university, students contemplating this action should discuss the matter with a counselor as soon as problems are perceived.

Required Medical Withdrawal

A student may be evaluated by a Counseling Center or Health Service professional, and that person, in consultation with another professional member of the Counseling or Health Center staff, may recommend to the dean of student affairs or a designee that a student be immediately withdrawn without prejudice from the university. This recommendation shall be made in consideration of the student's physical and/or mental health, safety, and well-being and the similar health, safety, and well-being of members of the university community.

The dean of student affairs or a designee shall discuss the need and procedure for the withdrawal with the professionals involved and other persons deemed necessary. When withdrawal is implemented, the dean or a designee shall meet directly with the student to inform him or her of the need and conditions of the withdrawal if this meeting is possible and/or appropriate. The university reserves the right to inform the parents of a dependent student of the forced medical withdrawal.

Readmission following medical withdrawal will require a positive evaluation of the student's condition by the appropriate Counseling or Health Center professionals and a personal interview with the dean or a designee. On the basis of the information received, the dean will approve or disapprove the application as part of the admissions process.

UNIVERSITY CORE CURRICULUM

The University of New Haven believes that all students studying for a bachelor's degree should develop a common set of skills; furthermore, they should be exposed to a commonality of intellectual experiences which are distinguishing traits of a university graduate. The university's goal is to prepare all graduates for the changing, complex lives they will lead, to focus on the quality of their lives, and to begin the development of the wisdom by which they will frame their lives. This can be done best through a university core curriculum.

Objectives

The university core curriculum offers students the broadest, rather than the narrowest, possible perspective on the world. For that reason, the university core curriculum includes interdisciplinary courses as well as courses within a specific field. The interrelationship of these courses enables students to share common experiences and to develop skills and conceptual abilities. These are:

Communication Skills

Clear Reasoning:
- Scientific Method
- Quantitative Reasoning
- Problem Solving and Synthetic Reasoning

Dimensions of Our World:
- Social and Cultural
- Natural and Physical
- Technical
- Historical
- Ethical and Moral
- Aesthetic

Depth of Knowledge in at Least One Field: The Major

University Core Curriculum

Communication Skills

		Credits
E 105	Expository Writing	3
	Plus one course from the following:	3
	E 110 Composition & Literature	
	CO 100 Human Communications	
	A technical writing course	

Clear Reasoning

Quantitative Skills. 3

Choose from the following:

M 105 Introductory College Mathematics
M 109 Elementary College Algebra
M 127 Finite Mathematics
or demonstration of an equivalent level of skill

A computer-related course 3

A scientific methods course 3

Dimensions of Our World

A science laboratory course 4

Two social science courses (*to be selected from two different disciplines*) 6

Economics
Political Science
Psychology
Sociology

HS 101 Foundations of the Western World 3

One course from either literature or philosophy 3

One course from either fine arts or music or theater 3

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The Major

Depth of knowledge in at least one field is crucial to a student's ability to work and live in the twentieth and twenty-first centuries. This is accomplished through choosing and following a major. The combination of a core curriculum, which has flexibility, logic, coherence, and relevance to the modern world, with the specialization of a major field of study represents the university's philosophy of an integrated collegiate education.

Majors are chosen from one of the university's five undergraduate schools: Arts and Sciences; Business; Engineering; Hotel, Restaurant and Tourism Administration; and Professional Studies.

SCHOOL OF ARTS AND SCIENCES

Joseph B. Chepaitis, Ph.D., dean

There is no more significant preparation for careers and lifetime personal development than a liberal education. Recent studies show that such an education prepares college graduates effectively for a career. These graduates are able to adapt to new environments, to think critically and conceptually, to integrate broad ranges of experience, to set goals and develop independence of thought, to seek leadership roles and to possess better overall interpersonal and administrative skills. These studies also reveal that many students educated in the arts and sciences ultimately attain responsible managerial positions because of the job training provided by a liberal education. A practical education, whether for a career or the job of life, is a liberal education.

The ideals of a liberal education are intellectual and imaginative growth, freedom of thought and inquiry and a sense of personal worth. The active pursuit of wisdom, the enrichment of the spirit and the development of each individual as a person offer the world its best hope for the future.

It is the aim of the School of Arts and Sciences to offer students the opportunity for a liberal education which will enrich the mind while it prepares them to pursue their interests and goals. Courses and programs have been designed to appeal to a wide range of interests and to secure the commitment of each student who is seriously engaged in the acquisition of an education.

Education is comprised of many elements, and not all education takes place in the classroom or even on the campus. New Haven is an exciting cultural center which offers libraries, natural history museums, art museums and exhibitions and workshops for dance and the creative arts. A constant procession of speakers and performing artists comes to the New Haven area. Long Wharf Theater is the home of an excellent regional company offering a varied fare of classics and new plays, and the Yale Repertory Theater is innovative and exciting. Programs of old and new films are offered on several college campuses in the area.

Speakers and performing artists are brought to the University of New Haven campus, and a series of concerts is organized by the world music program. The university's library offers comfortable surroundings for study and leisure reading. It has an excellent collection of books, journals, periodicals and phonograph records.

In the School of Arts and Sciences, students are encouraged to pursue as broad-based a program of study as possible. The school offers the degrees of bachelor of arts, bachelor of science and associate in science.

The School of Arts and Sciences offers programs leading to the bachelor of arts degree, the bachelor of science degree, the associate in science, and a number of certificate programs.

Through the Graduate School, the School of Arts and Sciences offers programs leading to the master of arts degree, the master of science degree and senior professional certificates.

Programs

Bachelor of Arts

Art
- Fashion Design
- Graphic Design
- Interior Design

Biology
Chemistry
Communication
Economics
English
- Writing Concentration
- Literature Concentration

History
Mathematics
Music & Sound Recording
Physics
Political Science
Psychology
Sociology
Social Welfare
World Music

Bachelor of Science

Applied Mathematics
- Natural Science concentration
- Computer Science concentration

Biology*
Biology—Premedical/Preveterinary/Predental
Environmental Studies
Microbiology
Music & Sound Recording
Physics

Associate in Science

Biology
Environmental Studies
Fashion Design
General Studies
Graphic Design
Interior Design
Journalism
Photography

Certificate Program

Art
- Fashion Design
- Graphic Design
- Interior Design
- Photography

Journalism
Paralegal Studies
Public Policy

Master of Arts

Community Psychology
Gerontology
Humanities
Legal Studies
Industrial/Organizational Psychology

Master of Science
Environmental Studies

Senior Professional Certificate
Applications of Psychology

Bachelor's Degrees

The bachelor's degree programs generally require 120 credit hours of study and take four years for full-time day students. Many other University of New Haven students take advantage of the full range of courses offered in the evening and complete their undergraduate degree on a schedule that complements their own careers.

Associate Degree Programs

The associate degree program is designed to encourage students to begin their college education even though they do not yet want to commit themselves to a full, four-year course of study. Sixty or more credit hours are required for the associate degree, and the credits earned may later apply toward the student's bachelor's degree.

The student wishing to pursue this option is encouraged to consult with the dean of the school or with the chairman in whose department the associate degree program is offered. Students who complete associate degree work may wish to have their credits applied toward further study leading to the bachelor of arts or bachelor of science.

Minors

It is highly recommended that students working toward a degree in one area of study give serious thought to organizing their elective courses so as to receive a minor in a second discipline. A minor usually consists of 18 credit hours devoted to the study of either a group of related subjects or subjects offered by one deparment.

Minors are offered in anthropology, art, biology, Black studies, chemistry, communication, English, environmental studies, history, journalism, mathematics, nutrition, physics, political science, psychology, social welfare, sociology and world music. Students interested in studying for a minor should consult with the chairman of the department offering the minor.

Certificate Programs

Students can take their first step toward an undergraduate degree by registering for one of the certificates offered by the School of Arts and Sciences in conjunction with the School of Professional Studies and Continuing Education.

Each certificate program is carefully designed as a concentrated introduction to a particular subject area and generally consists of courses totaling 15 to 18 credit hours.

Later, students may choose to apply the credits they have earned toward their undergraduate degree at the university.

Admission Criteria

An applicant for admission to the School of Arts and Sciences must be a graduate of an approved secondary school or the equivalent. While no set program of high school subjects is prescribed, an applicant must meet the standard of the university in respect to the high school average. Applicants must present 15 acceptable units of satisfactory work, including nine or more units of college preparatory subjects. Satisfactory scores on College Entrance Examination Board (S.A.T.) or American College Testing (A.C.T.) program tests are required.

University Core Curriculum

In addition to department requirements, students must fulfill all requirements of the core curriculum. See page 57.

A.S., General Studies

The School of Arts and Sciences offers the A.S. in general studies to serve two different student populations. The first is the new or returning student who wishes a general liberal arts education for personal enrichment. The second type of student is the one who is undecided about career objectives and wishes to defer the choice of a major field.

Nearly half of the 60 credit hours required for the degree are free electives. This flexibility permits the student to take courses in a number of different fields prior to choosing a major. By judicious choice of electives, it is possible to transfer into majors in any of the schools in the university.

Students planning to transfer to four-year programs in the School of Arts and Sciences should note additional core requirements in science and mathematics, English literature, fine arts and social science, as well as special requirements in particular major programs.

Required Courses

Students must complete 60 credit hours of courses to earn the associate degree with a general studies major, including the courses listed below:

E 105	Composition
E 110	Composition and Literature
EC 133	Principles of Economics I
PS 121	American Government and Politics
SO 113	Sociology
P 111	Introduction to Psychology

6 credit hours of history, including HS 101 or HS 102.
6 credits of science or mathematics electives.
1 Philosophy elective.
1 Literature elective.
24 credits of electives, with 12 hours of foreign languages recommended.

Department of Biology, Environmental Studies and General Science

Chairman: Dennis L. Kalma, Ph.D.

Professors: Dinwiddie C. Reams, Jr., D. Eng., Yale University; Burton C. Staugaard, Ph.D., University of Connecticut; H. Fessenden Wright, Ph.D., Cornell University

Associate Professors: Dennis Kalma, Ph.D., Yale University; Charles L. Vigue, Ph.D., North Carolina State University; Henry E. Voegeli, Jr., Ph.D., University of Rhode Island

Biology provides one of the cornerstones of a liberal education by increasing the knowledge and appreciation of oneself and of other living organisms in the ecosphere. As a major, biology prepares the student for professional or graduate training or for technical jobs in one of the health or life-science fields.

Because of the close relationship to chemistry, physics, psychology and sociology, biology provides an area for an academic minor concentration for students majoring in these and other disciplines such as business or engineering.

Each program includes botany, zoology, microbiology, genetics and general ecology. In the B.A. and A.S. programs, one and two terms, respectively, of general biology with laboratory are required.

The upper-level course requirements of each four-year program differ and detailed listings for each program are available on request. With the consent of the student's advisor, programs may be modified to reflect the special interests of the student.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Honor Society

The University of New Haven has a chapter of Beta Beta Beta, the honor society in biology. Full membership requires an average of 3.0 in biological courses and 3.0 overall. Students majoring in biology with lower grades and those majoring in other areas may affiliate as associate members. The society promotes scholarship, research and intellectual experiences outside the classroom by presenting a series of guest lecturers during the school year.

Basic Courses Required for Biology Majors

All students earning a bachelor's degree in biology must complete the university's core requirements, the course requirements for their particular biology program, and the basic biology courses listed below:

BI 201 Genetics
BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory
BI 301 Microbiology with Laboratory
BI 361 Biochemistry I with Laboratory
BI 362 Biochemistry II with Laboratory
BI 591 Seminar
BI 592 Seminar
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics Laboratory I
PH 106 General Physics Laboratory II

B.A., Biology

Students earning a B.A. with a biology major must complete 124 credit hours. Courses include the basic biology courses listed earlier in this section, the core requirements of the university, and those additional courses listed below:

Required Courses

BI 220 General Ecology with Laboratory
BI 303 Histology with Laboratory
BI 307 Comparative Vertebrate Anatomy with Laboratory
BI 308 General Physiology with Laboratory
BI 401 Embryology with Laboratory

3 credit hours biology/science elective
Choice of math courses M 115-117; M 117-118; or M 127-228

B.S., Biology

Students earning a B.S. with a major in biology must complete 132 credit hours. Courses include the basic biology courses listed earlier in this section, the core requirements of the university, and those additional courses listed below:

Required Courses

BI 220 General Ecology with Laboratory
BI 303 Histology with Laboratory
BI 307 Comparative Vertebrate Anatomy with Laboratory
BI 308 General Physiology with Laboratory
BI 401 Embryology with Laboratory

9 credit hours of biology electives.
Choice of math courses M 115-117; M 117-118; or M 115-116.

B.S., Biology/ Premedical/Predental/ Preveterinary

Students earning a B.S. with a major in biology in the premedical/ predental/preveterinary medical program must complete 130 credit hours. Course requirements include the basic courses listed earlier in this section, the core requirements of the university, and those additional courses listed below:

Required Courses

BI 303 Histology with Laboratory
BI 307 Comparative Vertebrate Anatomy with Laboratory
BI 308 General Physiology with Laboratory
BI 401 Embryology with Laboratory
BI 515 Biophysics with Laboratory
CH 211 Quantitative Analysis with Laboratory
M 117 Calculus I
M 118 Calculus II

Students who complete the program will have met the basic entrance requirements of virtually every U.S. college of medicine, dentistry and veterinary medicine. Entrance into these colleges is highly competitive and completion of the program does not guarantee acceptance into a medical, dental or veterinary medical college.

An agreement between the University of New Haven and Ross University in Dominica allows up to fifteen qualified pre-medical/pre-veterinary students from UNH each year to complete simultaneously their senior year and first year of medical or veterinary school at Ross University's Schools of Medicine and Veterinary Medicine. To qualify, students must have a grade point average of at least 3.0; receive a favorable recommendation from the University of New Haven's Premedical Advisory Committee, and apply for admission to Ross University at least six months before entrance.

B.S., Microbiology

The demand for knowledgeable people in several areas of applied microbiology has been caused by a national concern over the conditiion of our environment. This program is designed to address the more traditional careers in the field of microbiology as well as newly developing ones.

It will prepare people interested in medical diagnostic laboratories, pharmaceutical and food quality control, food and drug regulatory agencies, biological conversion of waste materials to useful products, industrial processes where microbes are detrimental, monitoring and improving upon water quality and waste treatment processes, and sanitation.

The program in microbiology is based upon a sound training in mathematics, biology, physics and chemistry upon which the advanced courses in microbiology develop.

Required Courses

Students earning a B.S. with a major in microbiology must complete 128 credit hours. These courses must include the basic biology courses listed earlier in this section, the university's core requirements and those additional courses listed below:

BI 220 General Ecology with Laboratory
BI 302 Bacteriology with Laboratory
BI 304 Immunology with Laboratory
BI 325 Industrial Microbiology with Laboratory
BI 333 Medical Microbiology with Laboratory
BI 335 Food Microbiology with Laboratory
BI 506 Sanitation and Food Service

3 credit hours of a biology elective.
Choice of math courses M 115-117 or M 117-118.

A.S., Biology

The associate in science degree program in biology is essentially the first two years of the bachelor of arts program in biology. Many students, especially those enrolled in the Evening Division, may prefer to receive the associate degree after the completion of the first two years of study.

The A.S. degree program may be modified to provide the necessary requirements for entrance into certain types of professional degree programs, such as nursing or pharmacy. Students should meet with their advisor for further information concerning the A.S. in biology.

Required Courses

All students must complete 60 to 64 credit hours of courses to earn the associate in science degree with a biology major, including the courses listed below:

BI 201 Genetics
BI 220 General Ecology with Laboratory
BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory
BI 301 Microbiology with Laboratory
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II

6 credit hours of biology electives.
Choice of math courses M 115-117; M 117-118; or M 127-228.

Minor in Biology

To minor in biology, students must complete 21 credit hours, including those courses listed below. In some instances, an upper-level biology course can be substituted for general biology.

BI 121 General and Human Biology I with Laboratory
BI 122 General and Human Biology II with Laboratory
or
BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory

BI 201 Genetics
BI 220 General Ecology with Laboratory
BI 251 Zoology with Laboratory
BI 252 Botany with Laboratory
BI 301 Microbiology with Laboratory

3 credit hours of a biology elective.

A concentration in biology offers greater exposure to the study of biology than a minor, yet still allows the student to complete a major in another field. A total of 28 credit hours is required. The subjects listed under the minor must be completed plus two other upper-level courses.

Minor in Bioengineering

No rigid group of courses constitutes a minor in bioengineering. Students wishing to follow such a program should major in one aspect of engineering and take a minor (21 credit hours) or a concentration (28 credit hours) in biology; or a biology major program may be combined with a minor or concentration in engineering. Consultation with the particular engineering and biology department chairman should be made before starting the program.

Minor in Education

The B.S. program in biology provides a well-rounded science background and fulfills all the technical courses needed for the teaching certificate. Some upper-level education courses may be taken in cooperation with other institutions.

Minor in Nutrition

Students who wish to minor in nutrition must take the following courses:

BI 115 Nutrition and Dietetics
BI 116 Fundamentals of Food Service
BI 315 Nutrition and Disease

BI 121 General and Human Biology I
BI 122 General and Human Biology II
or
BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory

1 upper-level nutrition course.

Environmental Studies

Environmentalists find employment in business, as well as in municipal, state and federal governmental organizations. Employment opportunities can be found in testing and control of pollutants, equipment sales, administration, laboratory research, consulting and as industrial environmental safety experts for those majoring in this field.

Usually specialized training is necessary if one eventually wishes an administrative job at a high salary level. These programs are designed to enable students to enter a graduate or specialty school to continue their education. Examples of advanced study would be a graduate program of environmental studies or engineering, a school of forestry, a program in urban ecology or a school of public health.

The bachelor of science degree in environmental studies offers concentrations in the following areas: air-water control and management, environmental health and community ecology.

A master of science program in environmental studies is offered by the Graduate School. This program has both an engineering and a science option. More may be learned about this program from the Graduate School catalog.

Basic Courses Required for Environmental Studies Majors

All students earning a bachelor's degree in environmental studies must complete the core requirements for the university, the course requirements for their particular program, and the basic environmental studies courses listed below:

BI 220 General Ecology with Laboratory
BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory
BI 301 Microbiology with Laboratory
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics Laboratory I
PH 106 General Physics Laboratory II

B.S., Environmental Studies (Air-Water Concentration)

The air-water concentration is oriented toward the engineering, chemical and biological testing, control and management of environmental pollutants.

Required Courses

Students earning a B.S. in environmental studies must complete 132 credit hours. These courses must include the basic environmental studies courses listed earlier in this section, the core requirements for the university, and those additional courses listed below:

BI 135 Earth Science
BI 502 Fresh Water and Marine Ecology with Laboratory
BI 510 General Environmental Health
CH 211 Quantitative Analysis with Laboratory
CH 341 Instrumental Methods of Analysis with Laboratory
SC 507 Characterization and Treatment of Wastes with Laboratory
SC 513 Environmental Pollutants with Laboratory

Choice of M 117 & 118 or M 115 & 117.
Choice of two restricted electives.
Choice of CH 201 & 202 Organic Chemistry I & II and CH 203 & 204 Organic Chemistry Laboratory I & II or CH 107 & 108 Elementary Organic Chemistry with Laboratory and IE 102 Introduction to Programming: FORTRAN.

B.S., Environmental Studies (Community Ecology Concentration)

The community ecology program has less stress on the physical and biological sciences and on mathematics. It is sociologically oriented, and a large number of the specialty courses are in the areas of political science and public administration. Hence, this would be a useful major for one considering work in these fields or one concerned with town planning or environmental law.

Required Courses

Students earning a B.S. in environmental studies with the community ecology concentration must complete 127 credit hours. These courses must include the basic environmental studies courses listed earlier in this section, the university's core requirements and those additional courses listed below:

BI 221 Human Ecology
BI 331 Animal Behavior *or* BI 524 Psychology
EC 134 Principles of Economics II *or* IE 204 Engineering Economics
P 321 Social Psychology
P 330 Introduction to Community Psychology
PA 101 Introduction to Public Administration
PA 390 Administrative Law
PA 490 Public Health Administration
PA 491 Public Health Law
PS 216 Urban Government
SC 135 Earth Science
SO 218 The Community
SO 221 Cultural Anthropology *or* SO 312 Marriage & Family
SO 410 Urban Sociology

Choice of math courses M 115 or M 117.
Choice of math courses M 118 or M 228.

B.S., Environmental Studies (Environmental Health Concentration)

The environmental health option stresses the biomedical aspect of the environmental pollutants as these affect mankind. This option provides students with the background for the area of public health and for that of sanitarian.

Required Courses

Students earning a B.S. in environmental studies with a concentration in environmental health must complete 134 credit hours. These courses must include the basic environmental studies courses listed earlier in this section, the university core requirements, and those additional courses listed below:

BI 115 Nutrition
BI 210 Human Anatomy & Physiology with Laboratory
BI 227 Entomology with Laboratory
BI 361 Biochemistry with Laboratory I
BI 362 Biochemistry with Laboratory II
BI 501 Parasitology with Laboratory
BI 506 Sanitation and Public Health
BI 510 General Environmental Health
BI 591 Seminar
PA 101 Introduction to Public Administration
PA 390 Administrative Law
PA 490 Public Health Administration
PA 491 Public Health and Environmental Law
SO 340 Medical Sociology

Choice of psychology courses P 216 or P 336.
Choice of math courses M 117, M 115 or M 127.
Choice of math courses M 118, M 117 or M 228.
Choose one: BI 302, BI 304, BI 308, BI 315, BI 320, BI 502, BI 503, BI 519, SC 509.

A.S., Environmental Studies

The associate's program is designed to lead directly into the bachelor's program if students wish to continue their studies. Evening students often prefer to obtain an associate's degree on their way to completing the requirements for the bachelor of science degree. The associate in science program provides a terminal degree for those who intend to work or already work in the environmental field, but who are trained in engineering, chemistry or business and lack the necessary background and training in biology and ecology required today in the practice of environmental control and management.

Required Courses

Students earning an associate degree in environmental science are required to complete 68 credit hours, which include first and second year courses from the university core requirements and the courses listed below:

BI 220 General Ecology with Laboratory
BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory
BI 301 Microbiology with Laboratory
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
SC 135 Earth Science

3 credit hours of biology elective.
Choice of math courses M 115-117; M 117-118; or M 115-116.

Minor in Environmental Studies

The minor in environmental studies provides a useful background for students majoring in many other areas of study if they have concern for the environment. For example, students majoring in political science might well combine their program with a minor in environmental studies. Another useful combination is an environmental studies minor and a major in business administration or engineering.

For specific information concerning a minor in environmental studies, please consult with the department chairman.

Department of Chemistry and Chemical Engineering

Chairman: George L. Wheeler, Ph.D.

Professor: Peter J. Desio, Ph.D., University of New Hampshire

Associate Professors: Harris L. Morris, Ph.D., University of Michigan (Jacob Finley Buckman Professor of Chemistry and Chemical Engineering); George L. Wheeler, Ph.D., University of Maryland

Assistant Professor: Michael J. Saliby, Ph.D., State University of New York at Binghamton

This program is designed to provide a traditional liberal arts background with the basic requirements of a chemistry major.

B.A., Chemistry

Required Courses

All students in the B.A. in chemistry program must complete 126 credit hours. These courses must include the university core requirements and the courses listed below:

CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
CH 331 Physical Chemistry with Laboratory I
CH 332 Physical Chemistry with Laboratory II
CH 411 Seminar I
CH 412 Seminar II
CH 501 Advanced Organic Chemistry
CH 521 Advanced Inorganic Chemistry
M 117 Calculus I
M 118 Calculus II
M 203 Calculus III
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

6 credit hours foreign language (German recommended).
18 credit hours of electives.

B.S., A.S., Chemistry

The B.S. and A.S. programs in chemistry appear in this catalog under the School of Engineering.

Department of Communication

Chairman: Jean-Richard Bodon, Ph.D.

Professor: M.L. McLaughlin, Ph.D., University of Wisconsin

Associate Professor: Steven A. Raucher, Ph.D., Wayne State University

Assistant Professor: Jean-Richard Bodon, Ph.D., Florida State University

Instructor: James C. Paty, M.A., University of Alabama

Practitioner-in-residence: Kathleen Long, M.A., West Virginia University, M.S.; Southern Illinois University

The communication programs at the university allow each student to develop interpersonal and mass communication skills and awareness through a sequence of course offerings.

Complete information about the bachelor of science degree program in communication is listed under the School of Business elsewhere in this catalog. Also included are course listings and information concerning communication as a minor field of study.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., Communication

The University of New Haven offers a B.A. and a B.S. in communication.

The bachelor of arts degree program normally carries a strong minor in journalism. It emphasizes the aesthetic and creative aspects of the major, and travels lightly along technical and production paths.

Required Courses

All students in the B.A. in communication program must complete 120 credit hours. These courses must include the university core requirements and 36 credit hours of communication courses, including those listed below:

CO 100 Human Communication
CO 101 Fundamentals of Mass Communication
CO 200 Theories of Group Communication
CO 208 Introduction to Broadcasting
CO 300 Persuasive Communication
CO 302 Social Impact of Media
CO 307 Writing for TV and Radio
CO 308 Broadcast Journalism
CO 340 History of Film
J 101 Journalism I

B.S., Communication

The University also offers a B.S. in communication through the School of Business. See page 109 for information.

A.S., Journalism

Program Coordinator: Steven A. Raucher, Ph.D.

The School of Arts and Sciences offers journalism as both an associate in science degree major and as a minor in a bachelor's degree curriculum.

A curriculum built around a minor in journalism and a bachelor's degree major such as communication, English, history, political science, social welfare or environmental studies provides an excellent undergraduate education for a potential journalist.

Internships—work on local newspapers for academic credit—are available for qualified students.

Required Courses

Students must complete 60 credit hours of courses to earn the associate in science degree with a journalism major, including the courses listed below:

CO 100 Human Communication
J 101 Journalism I
J 102 Journalism II
J 201 News Writing and Reporting
J 202 Advanced News Writing and Reporting
E 105 Composition
E 110 Composition and Literature
EC 133 Principles of Economics I
EC 134 Principles of Economics II
P 111 Introduction to Psychology
PS 121 American Government and Politics

6 credit hours of history including HS 102 The Western World in Modern Times.
6 credit hours of science or math electives.
9 credit hours of communications electives.

Communication Certificate Programs

Coordinator: Steven A. Raucher, Ph.D.

The communication department offers certificates in journalism and mass communication. Students may choose to take these courses on a credit or non-credit basis. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Journalism Certificate

A program designed to provide basic journalism skills in both print and broadcasting media. This certificate program may supplement students' experience, or prepare them for other areas in their current field of work. All students are required to take 15 credit hours, including the courses listed below:

Required Courses

J 101 Journalism I
J 102 Journalism II
J 201 News Writing and Reporting

Plus two courses from among the following:

CO 302 Social Impact of Media
CO 307 Writing for Television and Radio
CO 308 Broadcast Journalism
J 202 Advanced News Writing and Reporting
J 311 Copy Desk
J 351 Journalistic Performance
J 367 Interpretive Editorial Writing

Mass Communication Certificate

For information on the mass communication certificate, see page 110 in the School of Business section of the catalog.

Department of Economics & Quantitative Analysis

Chairman: Joseph A. Parker, Ph.D.

Professors: Phillip Kaplan, Ph.D., The Johns Hopkins University; Joseph A. Parker, Ph.D., University of Oklahoma; Alan Plotnick, Ph.D., University of Pennsylvania; Franklin B. Sherwood, Ph.D., University of Illinois; John J. Teluk, M.A., Free University of Munich; William S.Y. Pan, Ph.D., Columbia University

Associate Professors: George Karatzas, Ph.D., New York University; Ward Theilman, Ph.D., University of Illinois

Assistant Professor: John N. Moore, Ph.D., Southern Illinois University

Lecturer: John M. Carfora, M.S., London School of Economics/Political Science

Practitioner-in-Residence: Mary Martha Woodruff, M.A., Murray State University, M.S., University of New Haven

B.A., Economics

Economics courses provide a basis for an understanding of economic structures, a wide range of domestic and international issues and trends in the life of modern societies. They offer training in analysis of economic problems as an aid to the evaluation of economic policies.

Introductory courses are designed to provide the foundation of economic knowledge which every citizen in a modern complex society should have in order to understand the decisions of individual economic units and the operation of a national economy as a whole. This program is designed for students planning graduate studies.

Required Courses

All students in the B.A. in economics program must complete 120 credit hours. These courses must include the university core requirements and 30 credit hours in economics, including the courses listed below:

EC 133 Principles of Economics I
EC 134 Principles of Economics II
EC 340 Microeconomic Analysis
EC 341 Macroeconomic Analysis
EC 342 International Economics
EC 320 Mathematical Methods in Economics *or* EC 410 Econometrics
EC 442 Economic Thought

9 credit hours of an elective offered by the economics department.

B.S., Business Economics

The University of New Haven also offers a B.S. in business economics. Please see the School of Business section of this catalog for more information about the bachelor of science program.

Minor in Economics

A total of 18 credit hours of work in economics is required for the minor in economics.

Recommended Courses

EC 133 Principles of Economics I
EC 134 Principles of Economics II
EC 312 Contemporary Economic Problems

Plus 9 credits of economics electives to be chosen from:

EC 311 Government Regulation of Business
EC 314 Public Finance and Budgeting
EC 336 Money and Banking
EC 340 Microeconomic Analysis
EC 341 Macroeconomic Analysis
EC 345 Comparative Economic Systems
EC 350 Economics of Labor Relations
EC 440 Economic Development

Department of English

Chairman: Paul Marx, Ph.D.

Director of Freshman English: Donald M. Smith, A.M.

Professors: Paul Marx, Ph.D., New York University; Douglas Robillard, Ph.D., Wayne State University; David E.E. Sloane, Ph.D., Duke University

Associate Professor: Srilekha Bell, Ph.D., University of Wisconsin

Assistant Professors: Bruce A. French, M.A., Harvard University; Nancyanne Rabianski, Ph.D., State University of New York at Buffalo; Donald M. Smith, A.M., Columbia University

The study of literature is at the heart of a liberal education. English and American literature taken together comprise noble monuments to man's intellect and creativity. In addition to its generally broadening effect, the study of literature will help the student to think critically and write and speak more effectively.

A major in English is looked upon very favorably by admissions officers of law, medical and dental schools. It is also good preparation for graduate work in such fields as business, education, urban planning, social work and public health. Employers in many areas of business, industry and government look favorably upon the college graduate who has both breadth of knowledge and the ability to communicate.

A major in English may be taken with a concentration in either literature or writing; the two concentrations complement each other. The literature concentration stresses the development of critical appreciation of the great works in the English language; the writing concentration stresses the growth of the student's own skill in language use. Both concentrations recognize language as the most precise, comprehensive, and powerful instrument of communication ever devised by man. The ability to communicate effectively is not only the sign of an educated person, it is also a necessity for anyone hoping to make a career advancement.

Skill in written English, in particular, is eagerly sought and highly prized by employers in business, industry or government. Some specific areas in which this skill has immediate, practical worth are journalism, advertising, public relations, sales training or promotion. Many companies hire writers and editors for company periodicals and reports, equipment handbooks and service manuals. Publishing houses provide employment, of many kinds and on many levels, for persons skilled in writing. For writers of proven ability, there are numerous opportunities to free-lance for trade journals, newspapers, magazines and other publications.

Foreign Language Study

While study of a foreign language is not required, it is strongly recommended that the student who majors in English know at least one foreign language. Knowlege of a foreign language makes one more sensitive to the use and meaning of words in one's own language. Furthermore, knowledge of a foreign language widens one's perspective and deepens one's understanding through the insights gained into another culture. Students who are considering graduate study certainly should become competent in at least one foreign language.

So that students will become familiar with another culture, the department requires English majors to take at least one semester of continental literature, to be chosen from E406-409, courses that focus on the literature of different major European cultures.

The English Club

The club is open to anyone associated with the university. Its aims are to encourage a greater love of good writing, to provide informal and diversified encounters with professional writers and to further the literary arts on campus. In addition to sponsoring films on writers and group excursions to plays, the English Club publishes the university's student literary magazine, *The Noiseless Spider*.

Transfer Credit for Writing Courses

The English department will award credit for writing courses taken at other accredited colleges and/or universities to the extent that a transfer student's proficiency in writing is certified by the University of New Haven's own test of basic writing skills.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., English (Literature Concentration)

All students in the B.A. in English program with a concentration in literature must complete 120 credit hours. These courses must include all university core requirements and 36 credit hours of English beyond the freshman level, including those courses listed below:

Required Courses

E 211 Survey of English Literature I
E 212 Survey of English Literature II
E 341 Shakespeare I *or* E 342 Shakespeare II
E 406-409 A continental literature course

6 English courses, one each from groups A, B, C and D and two additional courses from groups A through E.

Group A

E 302 History of the English Language
E 323 Renaissance in England
E 362 Age of Donne and Milton
E 375 Age of Chaucer

Group B

E 353 Literature of the Romantic Era
E 356 Later 19th Century English Literature
E 371 Literature of the Neoclassic Era
E 390 English Novel I

Group C

E 361 Modern British Literature
E 391 English Novel II
E 402 Modern Poetry
E 405 Modern Drama

Group D

E 392 Poe, Hawthorne and Melville
E 393 American Transcendentalists
E 395 American Realism and Naturalism
E 477 American Literature Between World Wars
E 478 Contemporary American Literature
E 406-409 A continental literature course

Group E

E 201 The Western Tradition in Literature I
E 202 The Western Tradition in Literature II
E 217 Survey of Black American Literature I
E 218 Survey of Black American Literature II
E 260 The Short Story
E 261 The Essay
E 267 Creative Writing I
E 268 Creative Writing II
E 275 Film Studies
E 281 Science Fiction
E 481-498 A studies in literature course

B.A., English (Writing Concentration)

All students in the B.A. in English program with a writing concentration must complete 120 credit hours. These courses must include all university core requirements and 36 credit hours of English beyond the freshman level, including those listed below.

The term "writing skill" implies that its possessor has both ideas to express and the skill with which to communicate them. For this reason, students in the writing concentration are required to take literature courses, as well as writing courses.

Required Courses

E 220 Writing for Business and Industry
E 225 Technical Writing
E 250 Expository Writing
E 261 The Essay
E 267 Creative Writing I
E 268 Creative Writing II
E 480 Internship (may be substituted for one of the writing courses)

15 credit hours of literature (courses chosen in consultation with a faculty advisor) including one course from the E406-409 continental literature series.

Minor in Writing

A total of 18 credit hours of work in English is required for the minor in writing.

Required Courses

12 credit hours of writing courses.
6 credit hours of literature courses.

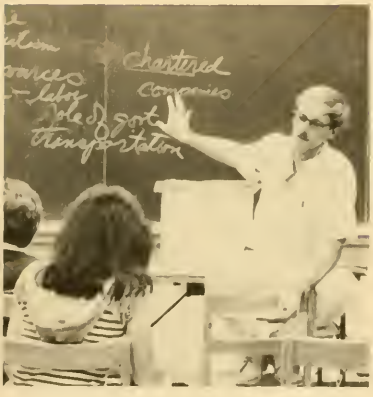
Minor in Literature

A total of 18 credit hours of work in English is required for the minor in literature.

Required Courses

E 211 Survey of English Literature I
E 212 Survey of English Literature II
E 213 Survey of American Literature I
E 214 Survey of American Literature II

6 credit hours of additonal literature courses.



Department of History

Chairman: Robert Glen, Ph.D.

Professor: Joseph B. Chepaitis, Ph.D., Georgetown University

Associate Professor: Robert Glen, Ph.D., University of California, Berkeley

Assistant Professor: Ann-Louise Shapiro, Ph.D., Brown University

History provides a framework for a liberal education. The study of human experience—failures as well as achievements—is the core of historical study. It gives insight into related disciplines in the humanities and social sciences and broadens the perspective of students in professional fields of business and engineering, revealing the complexity and interrelatedness of human experience.

History is also excellent preparation for a variety of careers in business, government, law, journalism, foreign service and many other areas. Because of the great variety of professional programs at the University of New Haven, the student interested in history can combine this interest with highly technical professional training.

The department strives to meet its objectives by teaching not only content but critical and writing skills through reading, class presentation and discussion, research and writing. Historical methodology is stressed in all advanced courses, and students are urged to take the history seminar in their senior year to sharpen their critical and analytical skills.

Phi Alpha Theta

The University of New Haven has a chapter of the International Honor Society in History, Phi Alpha Theta, which is open to those students who have had 12 hours of history or more and have maintained an average of better than 3.0 in history courses and better than 2.90 overall. The university chapter of Phi Alpha Theta provides the students and faculty with a social and intellectual experience beyond classroom work, offering films, speakers and roundtable discussions. Students not eligible for membership in the society are welcome to participate in all of the chapter's activities.

B.A., History

All students in the B.A. in history program must complete 120 credit hours. These courses must include the university core requirements and 36 credit hours of history courses, including those listed below. The balance of the program can be arranged in consultation with an advisor.

The department offers concentrations in the general program as well as in specific area studies that include American studies, European studies and economic history. A student who wishes to pursue concentrations in one of these areas should consult with an advisor for specific requirements.

Required Courses

HS 101 Foundations of the Western World
HS 102 The Western World in Modern Times
HS 491 Senior Seminar

HS 211 United States History to 1865 *and*
HS 212 United States History from 1865
or
HS 110 American History from 1607 *and*
Any other United States history course excluding HS 211 *and* HS 212

1 upper-division history course in each of these areas: European, American, non-Western world.

Minor in History

A total of 18 credit hours in history is required for a minor in history. These courses must include those listed below and may include any other combination of courses in history that supports the student's interests and needs.

Required Courses

HS 101 Foundations of the Western World *and*
HS 102 The Western World in Modern Times
or
HS 105 Foundations of Economic History *and*
HS 106 Modern Economic History

Department of Humanities, Fine and Performing Arts

Chairman: Michael G. Kaloyanides, Ph.D.

Professors: Ralf E. Carriuolo, Ph.D., Wesleyan University; Elizabeth Moffitt, M.A., Hunter College, City University of New York

Associate Professor: Michael G. Kaloyanides, Ph.D., Wesleyan University

Assistant Professor: Edward J. Maffeo, Ph.D., New York University

Practitioners-in-Residence: Stephanie Bradshaw, C.F.A. Fashion Design, Parsons School of Design; Sharon Carter Matthews, M.Arch., Yale University; Phillip Simon, M.F.A., Southeastern Massachusetts University

Fine and Applied Arts

Coordinator: Elizabeth Moffitt, B.F.A., M.A.

Study of the visual arts provides an opportunity for self-realization and gives the individual a perception of his relationship to society. Foundation courses in the basics of two- and three-dimensional design, color and drawing, plus work in such major disciplines as painting and sculpture, provide the student with the necessary vocabulary for effective visual communication.

Knowledge of the development of art throughout man's cultural evolution from the cave era to present day, is provided through studies in art history and the contemporary art scene. Thus equipped with a working vocabulary of visual form and a sense of art history, the student progresses toward the goal of making a mature visual statement in his or her chosen field.

University of New Haven art programs provide preparation for graduate study or career opportunities in the fields of fine arts, graphic design, interior design and fashion design, among others.

Students in all B.A. art programs listed below must complete at least 120 credit hours. These courses must include the core requirements for the university and the required courses as listed for each program.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., Fine Arts

This program is designed to assist the student in discovering his or her potential for creative expression in the plastic arts and the development of a personal idiom in the disciplines of his or her own choosing including painting, sculpture, drawing, printmaking, etc. Acquisition of an effective visual vocabulary is promoted by foundation courses in two- and three-dimensional design, color and drawing. Art historical studies provide perspective on the art forms of the past.

The program prepares the student for graduate study in art as well as for career opportunities in a broad spectrum of art and art-related fields.

Required Courses

AT 101 Introduction to Studio Art I
AT 102 Introduction to Studio Art II
AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 201 Painting I
AT 202 Painting II
AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 231 Art History I
AT 232 Art History II *or* art history elective
AT 304 Sculpture I *or* AT 305 Sculpture II
AT 313 Photography
AT 315 Printmaking
AT 302 Figure Drawing
AT 401 Studio Seminar I
AT 402 Studio Seminar II

B.A., Fashion Design

Practitioner-in-Residence: Stephanie Bradshaw, CFA

The program provides the student with practical experience in the techniques of draping, pattern making, fashion figure sketching, etc. Students execute an original design from the basic sketch to the finished garment in fabric. Foundation art courses in basic design, color and drawing help develop the esthetic sensitivities necessary to the effective exploitation of materials. Field trips to museum costume collections, fashion houses, etc., will be made available.

Required Courses

AT 101 Introduction to Studio Art I
AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 122 Graphic Design Production
AT 201 Painting
AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 231 Art History I
AT 232 Art History II *or* art history elective
AT 302 Figure Drawing
AT 309 Photographic Design
AT 313 Photography
AT 320 Fashion Design I
AT 321 Fashion Design II
AT 322 Illustration
AT 401 Studio Seminar I (in Fashion Design)
AT 402 Studio Seminar II (in Fashion Design)

B.A., Graphic Design

Practitioner-in-Residence: Phillip Simon, M.F.A.

Graphic design is the creation of visual material using drawing, type and photographic techniques in order to communicate information. While often in the form of printed material such as books, brochures, posters and signs, graphic design also has applications in video and computer graphics.

The programs in graphic design train students for professional careers in this challenging field as well as preparing them for graduate study in graphic design. The graphic design programs emphasize the development of drawing proficiency, innovative approaches to design and typographical skills accompanied by a fundamental understanding of the lastest graphic communications technology.

Required Courses

AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 122 Graphic Design Production
AT 201 Painting
AT 203 Intermediate Graphic Design I
AT 204 Intermediate Graphic Design II
AT 211 Basic Design (two-dimensional)
AT 212 Basic Design (three-dimensional)
AT 213 Color
AT 221 Typography I
AT 222 Typography II
AT 231 History of Art
AT 232 History of Art II *or* art history elective
AT 309 Photo Design
AT 312 Lettering
AT 313 Photography I
AT 315 Printmaking
AT 322 Illustration
AT 401 Studio Seminar I (in Graphic Design)
AT 402 Studio Seminar II (in Graphic Design)
AT 599 Independent Senior Project
MK 307 Advertising and Promotion

B.A., Interior Design

Practitioner-in-Residence: Sharon Carter Matthews, M.Arch.

Studies in the interior design programs are organized to focus on the technology of a built environment, programming and three-dimensional composition. Students explore the relationship between interior designers and their clients, the interaction between designers and architects and methods of communication between designers and fabricators. In addition to interior design problems, students are given the opportunity to develop their studio art skills and their presentation techniques. Core course work includes architectural drawing, building construction, color theory, history of interior design and textile design.

Required Courses

AT 101 Introduction to Studio Art
AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 216 Architectural Drafting
AT 231 History of Art I
AT 232 History of Art II *or* art history elective
AT 233 History of Interior Design
AT 302 Figure Drawing
AT 304 Sculpture I *or* AT 305 Sculpture II
AT 317 Interior Design
AT 319 Textile Design
AT 322 Illustration
AT 401 Studio Seminar I (in Interior Design)
AT 402 Studio Seminar II (in Interior Design)

Recommended Electives

AT 203 Graphic Design I
AT 309 Photographic Design
1 art history elective.

A.S., Fashion Design

Required Courses

AT 101 Introduction to Studio Art I
AT 105 Basic Drawing I
AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 231 History of Art
AT 232 History of Art II *or* art history elective
AT 302 Figure Drawing
AT 319 Textile Design
AT 320 Fashion Design I
AT 321 Fashion Design II
AT 322 Illustration
AT 401 Studio Seminar I (in Fashion Design)

A.S., Graphic Design

Required Courses

AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 211 Basic Design I (two-dimensional)
AT 212 Basic Design II (three-dimensional)
AT 312 Lettering
AT 213 Color
AT 122 Graphic Design Production
AT 221 Typography I
AT 222 Typography II
AT 313 Photography
AT 309 Photo Design

A.S., Interior Design

Required Courses

AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 216 Architectural Drawing
AT 231 History of Art I
AT 232 History of Art II *or* art history elective
AT 233 History of Interior Design
AT 317 Interior Design
AT 322 Illustration
AT 304 Sculpture I *or* AT 305 Sculpture II
AT 402 Studio Seminar II (in Interior Design)

A.S., Photography

Required Courses

AT 101 Introduction to Studio Art I
AT 105 Basic Drawing I
AT 211 Basic Design I
AT 231 History of Art I
AT 232 History of Art II *or* art history elective
AT 309 Photographic Design
AT 310 Studio Lighting
AT 313 Photography I
AT 314 Photography II
AT 330 Film Animation
AT 420 Studio Seminar

Minor in Art

A total of 18 credit hours of work in art is required for the minor in art. Students may take the courses listed below and any other combination of courses that fills their needs and interests.

Recommended Courses

AT 105 Basic Drawing I
AT 211 Basic Design I *or* AT 212 Basic Design II
AT 231 History of Art I
AT 232 History of Art II
AT 213 Color
AT 201 Painting I
AT 304 Sculpture I *or* AT 305 Sculpture II

Art Certificate Programs

Coordinator: Elizabeth Moffitt, M.A.

The art department offers certificates in graphic design, fashion design, interior design and photography. Students must complete 15 to 18 credit hours of required courses to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Graphic Design Certificate

This is a certificate to prepare persons already in industry who wish to update their commercial art skills or for persons who wish experience in layout, design and the principles of effective design communication. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

AT 105 Basic Drawing I
AT 122 Graphic Design Production
AT 211 Basic Design I
AT 221 Typography I
AT 222 Typography II
AT 312 Lettering

Fashion Design Certificate

A program for beginners as well as individuals already working in the fashion industry who wish to add to their knowledge of the technical skills of fashion creation, marketing, and merchandising. Sewing and design skills are enhanced through the teaching of pattern-making and textile design processes. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

AT 105 Basic Drawing I
AT 211 Basic Design I
AT 213 Color
AT 302 Figure Drawing
AT 320 Fashion Design I
AT 321 Fashion Design II

Interior Design Certificate

A program developed for individuals seeking a professional knowledge of design and decorating skills applicable to both home and office decoration. All students are required to take 15 credit hours, including five of the seven courses listed below:

Required Courses

AT 105 Basic Drawing I
AT 211 Basic Design I
AT 216 Architectural Drawing
AT 233 History of Interior Design
AT 312 Color
AT 317 Interior Design
CE 302 Building Construction

Photography Certificate

A program in the basic design principles and techniques which govern photography. Designed for beginners, for people who want to apply photography to their present jobs, and for people who want to improve their present photography skills.

This certificate also offers a foundation in photography for pleasure and leisure activities and for an aesthetic appreciation of photography as well. Students are required to take 15 credit hours, including the following courses:

Required Courses

AT 211 Basic Design I
AT 309 Photographic Design
AT 313 Photography I
AT 314 Photography II
AT 330 Film Animation

Theatre Arts

Theatre courses may be used to satisfy the fine arts core requirements.

Productions

The university community may take part in all department productions. Volunteers may act, help with lighting, set and costume design, set construction, publicity and stage management. Particpants need not be enrolled in theatre classes.

Minor in Theatre Arts

Students may complete a minor in theatre arts by taking 18 credit hours in the theatre program. They may choose from dramatic literature in theatrical contexts, production styles, directing and acting among others. Two major productions are mounted each year by the department with opportunities for students in performance, directing and backstage work.

Required Courses

T 131 Introduction to the Theatre
T 132 Production Styles
T 141 World Drama and Theatre I
T 142 World Drama and Theatre II

6 credit hours in theatre arts, choose from: T341 Acting, T342 Directing, T599 Independent Study (12 credits maximum).

World Music

Coordinator: Michael G. Kaloyanides, Ph.D.

The program in world music is unique. Music is studied as a world-wide phenomenon, not simply defined in the Western European art tradition. The student is encouraged to view music as a creation of all cultures and civilizations on both the folk and art levels, including our own urban and ethnic subcultures. Exposure to various music should lead the student to specialization in a particular area as an upperclassman.

Since music is a performing art, the student is expected to reach a satisfactory level of proficiency in either a traditional western instrument or one central to the particular culture in which he chooses to specialize.

A degree in world music qualifies students for professions as performers, composers, music publishers, critics and journalists, teachers, curators and librarians. Combining music with other fields, graduates may enter the fields of concert and ensemble management and sound engineering areas. There are, of course, countless performance opportunities for instrumentalists, vocalists and composers. Vocations such as music publishing, recording sales and promotions, and music criticism and journalism are also available to graduates with a degree in music. Students may also pursue careers in music education, not only as teachers in schools and conservatories but also as curators and librarians.

World music courses may be used to satisfy the fine arts core requirements.

B.A., World Music

All students majoring in the B.A. in world music program must complete 120 credit hours.

Although the program contains no language requirements, students are urged to acquaint themselves with the language of their area of concentration.

Required Courses

These courses must include the core requirements for the university and 36 credit hours of world music including 21 credit hours from among the following courses listed below:

MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 116 Performance (at least 3 credit hours must be earned)
MU 150 Introduction to Music Theory
MU 151 Introduction to Music Theory
MU 198 Introduction to American Music
MU 199 Introduction to American Music
MU 201 Analysis and History of European Art Music
MU 202 Analysis and History of European Art Music
MU 250 Theory and Composition
MU 251 Theory and Composition

15 credit hours of upper-level courses (MU299 and above) including MU416 Advanced Performance.

Minor in World Music

A total of 18 credit hours in world music courses other than performance are required for the minor in world music. A student's program should be planned in consultation with a member of the world music faculty.

B.A., Music and Sound Recording

The bachelor of arts in music and sound recording is a unique four-year degree program. Its development is based on the philosophy that musicians should have a working knowledge of the media through which their art is most often heard and that sound recordists should have a working knowledge of the art form they are recording. Thus, it is designed to instruct students in three interrelated areas: 1) music history, theory and aesthetics; 2) musicianship; and 3) sound recording methodology and technique. Course work includes 38 credits in arts and sciences, 36 credits in music, 15 credits in recording and 33 credits in restricted and free electives for a total of 122.

Required Courses

These courses must include university core requirements and the following courses listed below:

MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 150 Music Theory I
MU 151 Music Theory II
MU 116 Performance (two semesters)
MU 201 Analysis and History of European Art Music
MU 202 Analysis and History of European Art Music
MU 175 Musicianship I
MU 176 Musicianship II
MU 211 History of Rock
MU 221 Film Music
MU 301 Recording Fundamentals
MU 311 Multitrack Recording I
MU 312 Multitrack Recording II
MU 401 Recording Seminar/Project I
MU 402 Recording Seminar/Project II
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics Lab I
PH 106 General Physics Lab II

B.S., Music and Sound Recording

The bachelor of science in music and sound recording is similar to the bachelor of arts program in its philosophy and design but provides a stronger background in the science and technology of recording through classes in calculus, physics and electrical engineering. Course work includes 43 credits in arts and sciences, 36 credits in music, 15 credits in recording, six credits in electrical engineering and 21 credits in restricted and free electives for a total of 121 credits.

Required Courses

These courses must include university core requirements and the following courses listed below:

MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 150 Music Theory I
MU 151 Music Theory II
MU 116 Performance (2 semesters)
MU 201 Analysis and History of European Art Music
MU 202 Analysis and History of European Art Music
MU 175 Musicianship I
MU 176 Musicianship II
MU 211 History of Rock
MU 221 Film Music

MU 301 Recording Fundamentals
MU 311 Multitrack Recording I
MU 312 Multitrack Recording II
MU 401 Recording Seminar/Project I
MU 402 Recording Seminar/Project II
M 117 Calculus I
M 118 Calculus II
PH 150 Mechanics, Heat, Waves with Laboratory
PH 250 Electromagnetism & Optics with Laboratory
EE 211 Principles of Electrical Engineering I
EE 212 Principles of Electrical Engineering II

Department of Mathematics

Chairman: W. Thurmon Whitley, Ph.D.

Coordinator of Precalculus Mathematics: Shirley Wakin, Ph.D.

Professors: Joseph M. Gangler, Ph.D., Columbia University; Bertram Ross, Ph.D., Courant Institute, New York University; Bruce Tyndall, M.S., University of Iowa; James W. Uebelacker, Ph.D., Syracuse University; W. Thurman Whitley, Ph.D., Virginia Polytechnic Institute and State University

Associate Professors: Erik J. Rosenthal, Ph.D., University of California at Berkeley; Baldev K. Sachdeva, Ph.D., Pennsylvania State University

Assistant Professor: Shirley Wakin, Ph.D., University of Massachusetts

The study of mathematics opens the door to a wide variety of career opportunities and academic pursuits. Mathematics is a major part of the framework of modern science and technology. Persons with strong mathematics backgrounds qualify for stimulating occupations in an ever increasing number of fields, from private industry to government service.

The mathematics department offers flexible programs in mathematics and applied mathematics with concentrations in computer science, natural sciences and mathematics. Students who do not take the computer science concentration are encouraged to consider a minor in computer science to be better prepared for our technological society. Students also may minor in mathematics.

Mathematics students have direct access to the departmental microcomputer and the university's new Data General MV/8000 computer via numerous terminals distributed throughout the campus.

Mathematics Club

The department of mathematics sponsors the Mathematics Club, which is open to all university students. The club provides students and faculty the opportunity to participate together outside the classroom, in the study of mathematics and its applications. Topics range from the serious application of mathematics to society, to avocations such as mathematically-based puzzles and games. Typical activities of the club include guest lectures, field trips, films and social events.

Honorary Memberships

Each year, the mathematics department awards to outstanding mathematics students free honorary memberships in the Mathematical Association of America, American Mathematical Society and Society for Industrial and Applied Mathematics.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Basic Courses Required for All Mathematics Majors

All students earning a bachelor's degree in mathematics must complete the university core requirements, the course requirements for their particular math program, and the basic math courses listed below:

M 117 Calculus I
M 118 Calculus II
M 203 Calculus III
M 204 Differential Equations
M 231 Linear Algebra
M 361 Mathematical Modeling
M 371 Probability and Statistics I

Mathematics majors are strongly urged to consider the courses listed below, either as electives or as core curriculum courses:

EC 320 Mathematical Methods in Economics
PL 240 Philosophy of Science
SO 250 Research Methods

Refer to the university core requirements listed earlier in this catalog for the balance of courses needed.

B.A., Mathematics

This program is designed to provide students with a broad overview of mathematics and its applictions, especially for students who wish to study pure mathematics, or for those whose career objectives include mathematics education or the application of mathematics to such fields as business, economics, the social sciences and actuarial science.

Students earning a B.A. with a mathematics major must complete a minimum 124 credit hours. These courses must include the basic courses required for all mathematics majors, which are listed above, the university core requirements listed earlier in this catalog, and the courses listed below:

Required Courses

M 321 Modern Algebra I
M 491 Departmental Seminar
IE 106 Introduction to Computers: Pascal

6 credit hours of mathematics, compatible with area of concentration, M300 series or above.
8 credit hours of natural science with laboratories in two semester sequence.

B.S., Applied Mathematics (Computer Science Concentration)

This program is primarily for students interested in using computing techniques to solve mathematical problems in a wide variety of disciplines. In addition to the mathematics requirements, students take eight or nine courses in computer science designed to provide training in the structure of computer languages, computing machines and computing systems.

Students in this program must complete a minimum of 125 credit hours. These courses must include the basic courses required for all mathematics majors, which are listed above; the university core requirements listed earlier in this catalog, and the courses listed below:

Required Courses

M 338 Numerical Analysis
M 472 Probability and Statistics II
IE 106 Introduction to Computers: Pascal
IE 226 Advanced Programming
IE 320 Operating Systems
IE 334 Assembler Language
IE 237 Data Structures
IE 339 Structure of Language/Compilers

6 credit hours in computer science.
6 credit hours in mathematics, chemistry or physics.
3 credit hours in computer science, mathematics, chemistry or physics.

B.S., Applied Mathematics (Natural Sciences Concentration)

This program is primarily for students whose mathematical interests are in the application of mathematics to such fields as physics, chemistry, statistics, operations research and engineering. In addition to the courses listed below, the students take five to seven courses in a single discipline of the natural sciences or engineering.

Students in this program must complete a minimum of 125 credit hours. These courses must include the basic courses required for all mathematics majors, which are listed above; the university core requirements listed earlier in this catalog, and the courses listed below:

Required Courses

M 321 Modern Algebra
M 338 Numerical Analysis I
M 491 Departmental Seminar
IE 106 Introduction to Computers: Pascal
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

6 credit hours of mathematics, compatible with area of concentration, M300 series or above.

Minor in Mathematics

Students may minor in mathematics by completing six mathematics courses approved by the department. Those students contemplating a minor in mathematics should consult with the department as early as possible in their academic careers as to the choice and availability of courses.

Required Courses

M 118 Calculus II
M 203 Calculus III
M 231 Linear Algebra

9 credit hours of mathematics courses which complement the major area of interest.

Recommended Courses

M 121 Algebraic Structures I
M 204 Differential Equations
M 270 Discrete Structures or any course in the M300 series or above

Physics Department

Chairman: Kee W. Chun, Ph.D.

Professors: Kee W. Chun, Ph.D., University of Pennsylvania
Richard C. Morrison, Ph.D., Yale University

Physics is concerned with the most basic aspects of our knowledge of the natural world. It is a subject in which experiment and theory evolve constantly to provide a precise and simple description of the physical phenomena around us in terms of a relatively small number of physical laws and theories.

As a fundamental science, physics is at the root of almost all branches of science and technology. It has provided the microscopic basis for chemistry, has stimulated important developments in mathematics, is the basis of most branches of engineering, and, during the past decade, has proved to be increasingly valuable to the life sciences.

Consequently, a basic knowledge of physics is excellent preparation for diverse careers: research in university and government laboratories, industrial research and development, applied science and engineering, biological and medical sciences, research in environmental problems, and teaching at all levels from the elementary school to the university. It also prepares students for careers in non-physics-related fields such as philosophy, business and law.

The department offers B.A. and B.S. degrees in physics. Degree requirements are kept flexible to allow each physics major to tailor a program suited to individual career interests. The department strives to provide a well-balanced, four-year program emphasizing both the theoretical and the experimental in the broad areas of classical and modern physics.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., B.S., Physics

All students in the B.A. or B.S. in physics program must complete 127 credit hours. These courses must include the university core requirements, the course requirements for their particular physics program and the courses listed below. The balance of the program will be worked out in consultation with a faculty advisor.

Required Courses

PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
PH 211 Modern Physics
PH 301 Analytical Mechanics
PH 351 Intermediate Electricity and Magnetism
PH 373 Advanced Laboratory

CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
M 117 Calculus I
M 118 Calculus II
M 203 Calculus III
M 204 Differential Equations

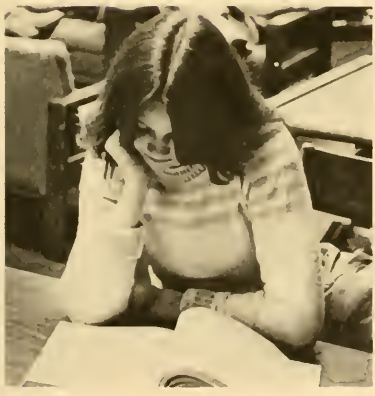
3 credit hours of PH 401 Atomic Physics, PH 406 Solid State Physics or PH 415 Nuclear Physics.
12 credit hours of physics electives.
6 credit hours of mathematics electives.
9 credit hours of restricted electives chosen from physical science, engineering and mathematics.

Minor in Physics

A total of 20 credit hours of work in physics is required for the minor in physics. Students may select from the courses listed below or plan their program in consultation with a faculty advisor.

Required Courses

PH 130 Radiation Safety
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
PH 211 Modern Physics
PH 270 Thermal Physics
PH 280 Lasers
PH 285 Modern Optics
PH 401 Atomic Physics
PH 415 Nuclear Physics



Department of Political Science

Chairman: James Dull, Ph.D.

Professors: Caroline A. Dinegar, Ph.D., Columbia University; Franz B. Gross, Ph.D., Harvard University

Associate Professors: James Dull, Ph.D., Columbia University; Joshua H. Sandman, Ph.D., New York University

Assistant Professor: Natalie J. Ferringer, Ph.D., University of Virginia

A major in political science provides the student with a foundation for a career in government on the local, state, national, and international levels; for a career in law; for graduate school programs in political science, international relations and public policy, and for careers in the areas of campaign management, communication, public relations and business. All political science and pre-law majors or minors should discuss career goals and educational objectives with a departmental advisor within one month of entrance into the program.

Further, advice on Law School Admissions Test (LSAT) and the Graduate Record Examination (GRE) preparation courses, which our pre-law and graduate school-oriented students are urged to take, is available through the department.

Pre-law majors and minors in the department of political science have been especially successful in gaining entrance to law schools throughout the country.

The political science faculty grants the Rollin G. Osterwies Award for Excellence in Political Science each year to the outstanding student in the political science major.

B.A., Political Science

All students in the B.A. in political science program must complete 120 credit hours. These courses must include the university core requirements listed earlier in the catalog, and 48 credit hours of political science courses, including those listed below:

Required Courses

PS 121 American Government and Politics
PS 122 State and Local Government and Politics
PS 241 International Relations
PS 261 Modern Political Analysis
PS 461 Political Theory: Ancient & Medieval
PS 462 Political Theory: Modern & Contemporary
PS 499 (*or* PS 500) Senior Seminar in Political Science

Choice of comparative political systems PS 281-PS 285 (3-credit-hour elective).
24 credit hours of political science electives to be chosen with student's departmental advisor.
Choice of M 228 Elementary Statistics or P 301 Statistics for Behavioral Sciences.

Minor in Political Science

A student may minor in political science by completing 18 credit hours in the program, including those courses listed below:

Required Courses

PS 121 American Government and Politics
PS 122 State and Local Government and Politics

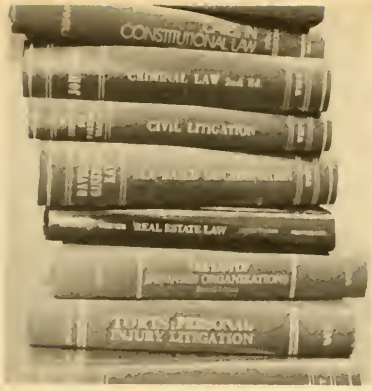
plus 12 credit hours of political science courses chosen in conjunction with a department advisor. These courses should be related to the area of student interest and concentration.

Minor in Black Studies

The Black studies minor is an interdisciplinary program offered in the School of Arts and Sciences in which the department of political science participates. The minor consists of courses in political science, English, history, humanities and world music. A student may minor in this program by completing 18 credit hours including courses selected from the listing below:

Suggested Courses

PS 205 The Politics of the Black Movement in America
E 217 Survey of Black American Literature I
E 218 Survey of Black American Literature II
HS 120 History of Blacks in America
MU 112 Introduction to World Music
MU 550 Studies in Urban Ethnic Music
P 321 Social Psychology
PL 213 Contemporary Issues in Philosophy I
PL 214 Contemporary Issues in Philosophy II
SO 114 Contemporary Social Problems
SO 315 Social Change
SO 400 Ethnic Dynamics
SO 410 Urban Sociology



The Institute of Law and Public Affairs

Director: Caroline A. Dinegar, Ph.D.

The Institute of Law and Public Affairs has been established to provide undergraduates with specific training in the areas of paralegal activities, public policy and public affairs. Students with an undergraduate major in any of the schools of the university may attain a paraprofessional status in legal affairs or public affairs by completing a minor in the institute. The term paraprofessional applies to those with special training in a professional field but who do not yet possess the terminal degree normally required in the profession. In many instances, paraprofessional status is a step toward the accomplishment of the final degree.

Paralegal Studies Certificate

A certificate in paralegal studies is issued to students who complete 18 credit hours of paralegal courses. The certificate is normally supported by courses in the area of political science as well as history, psychology and sociology. The required courses are listed below:

Required Courses

†PS 238 Legal Procedure I
†PS 240 Legal Bibliography & Resources (prerequisite for PS 440)
†PS 440 Legal Research

9 additional credit hours from the courses in the Institute of Law and Public Affairs. Institute courses are designated by a dagger (†) in the course descriptions section.

Minor in Legal Affairs

The legal affairs minor in the Institute of Law and Public Affairs prepares students for positions as office managers, administrative assistants, legal investigators, public policy research assistants, public policy library assistants and legislative researchers in private and public law firms and governmental agencies. Students acquire specific skills which will enable them to do important legal work under the supervision of practicing attorneys. The legal affairs minor also prepares students for positions in the judicial system and for research positions and clerkships in the law libraries of the state. Courses are selected in consultation with a faculty advisor.

Minor in Public Affairs

The public affairs minor in the Institute of Law and Public Affairs is directed towards providing training for civil service positions at all levels of government. The goal of such training is to provide more effective public administrators and to introduce creativity into the profession of public service. The public affairs minor will take a problem-solving approach to the discipline as students will be conducting basic, in-depth research on problems of governmental agencies. Students in this minor will be able to develop valuable insights into the nature of the public policy process from the vantage point of the bureaucracy.

Courses are selected in consultation with a faculty advisor.

Department of Psychology

Chairman: Thomas L. Mentzer, Ph.D.

Professor: Robert J. Hoffnung, Ph.D., University of Cincinnati; Thomas L. Mentzer, Ph.D., Brown University

Associate Professors: Robert D. Dugan, Ph.D., Ohio State University; Arnold Hyman, Ph.D., University of Cincinnati; Michael Morris, Ph.D., Boston College; Michael W. York, Ph.D., University of Maryland

Assistant Professor: Benjamin B. Weybrew, Ph.D., University of Colorado

Psychology faces the questions that are of most immediate concern to the individual: problems such as personal identity, the social context, normalcy versus deviance and behavior change. As a science, psychology is devoted to the understanding, prediction and control of behavior.

Our dedication to these goals requires that we study behavior from a number of viewpoints—development, learning, social, physiological, abnormal, personality—each fascinating in its own right. The student's attention is also drawn to the many settings in which behavior occurs, from the family to the laboratory, from the clinic to the marketplace. This great diversity ensures that the study of psychology will interrelate well with other courses in the humanities and sciences.

The undergraduate program in the department of psychology combines basic science and applications to prepare students for further professional training in psychology or for careers in human professions, law, business, education and human services delivery. Study in psychology is frequently combined with work in other programs at the University of New Haven, particularly those in sociology, political science, social welfare, management, criminal justice and biology. Courses in business and industrial psychology and psychological testing are especially useful to students preparing for careers in business or public service.

The psychology major develops skills in design and analysis of research and effective communication through the study of statistics, experimental methods, psychological measurement and psychological theory. Through involvement with behavior therapy and community psychology field work, the student can confront behavior problems in a more direct, practical fashion. The department feels that it is only through a thorough grounding in basic skills and principles that students can effectively realize their own goals.

The psychology program benefits from a psychology laboratory building on the main campus. The laboratory contains facilities for student and faculty research with human and animal subjects. Specialized apparatus permits the study of human and animal learning, sensory capacities, social processes, and biofeedback control.

The University of New Haven also offers the master of arts degree in community psychology and industrial/organizational psychology as well as a senior professional certificate in applications of psychology. For descriptions of these programs, see the Graduate School catalog.

Psychology Club

Students in psychology have the opportunity to participate in the Psychology Club. Its purpose is to provide opportunities both to socialize and to develop students' interests in the science and profession of psychology. Throughout the year, the club sponsors guest lecturers and a variety of field trips. All students are welcome to join.

Psi Chi Honor Society

Membership in the university chapter of Psi Chi, the national honor society, is open to students in the top 35 percent of their class who have completed at least nine credit hours of psychology with grades of B or better, and who are making the study of psychology one of their major interests.

Graduating seniors may also nominate themselves for the annually-awarded McGough psychology prize.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practice, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., Psychology

All students in the B.A. in psychology program must complete 120 credit hours. These courses must include the university core requirements and the courses listed below:

Required Courses

P 111	Introduction to Psychology
P 301	Statistics for Behavioral Sciences
P 305	Experimental Methods in Psychology
P 321	Social Psychology
P 341	Psychological Theory (required only for students planning to attend graduate school)
P 350	Human Assessment
BI 121	General and Human Biology I
BI 122	General and Human Biology II
SO 113	Sociology

21 additional credit hours (24 if P 341 is not taken) of psychology courses. Only two 200-level courses may be counted toward the major.

3 credit hours of philosopy elective.
3 credit hours of mathematics; M 109 or M 127 are recommended.

Minor in Psychology

Psychology, perhaps more than any other subject, relates closely to many other disciplines. A minor in psychology prepares you for graduate study in the field and can add another dimension to your studies in other programs at the university. A total of 21 credit hours is required for a minor in psychology including the courses listed below:

Required Courses

P 111	Introduction to Psychology
P 301	Statistics for Behavioral Sciences
P 305	Experimental Methods in Psychology

12 additional credits of psychology electives (at least two courses must be at the 300-level).

Criminal justice majors: P 336 Abnormal Psychology may not be counted toward the psychology minor. A 300-level psychology elective may be substituted for P 305 for students required to take SO 250.

Business administration majors: QA 216 may be substituted for P 301.

Department of Sociology and Social Welfare

Chairman: Allen Sack, Ph.D.

Professors: Faith H. Eikaas, Ph.D., Syracuse University; Walter Jewell, Ph.D., Harvard University

Associate Professors: Judith Bograd Gordon, Ph.D., University of Michigan; Michael E. Hayes, M.S.W., Ph.D., University of Michigan; Allen L. Sack, Ph.D., Pennsylvania State University

Sociology is the study of social life and the social causes and consequences of human behavior. Sociology's subject matter ranges from analysis of families, corporations, cities and sports to sex, death, race and other phenomena. The sociological perspective is empirically grounded and broad enough to be relevant to those considering careers in related fields such as research, governmental service, social work, personnel work, advertising, law, medicine, journalism, social gerontology and industry.

Career preparation is one focus of the department and students will select or be assigned an academic advisor early in the major so a personalized program can be constructed.

Whether the student interest is in gaining an appreciation of the theories and methods of sociology for their own sake or in specified career preparation, a major in sociology will be of great benefit for students who become engaged both in finding out more about the social world in which we live and in applying sociology to shape both the social world and their own.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practice, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., Sociology

All students in the B.A. in sociology program must complete 120 credit hours. These courses must include the university core requirements listed earlier in the catalog, and 33 credit hours of sociology courses, including the courses listed below:

Required Courses

SO 113 Sociology
SO 114 Contemporary Social Problems or SO 214 Deviance
SO 250 Research Methods
SO 413 Social Theory
SO 440 Undergraduate Seminar

15 credit hours of sociology courses (9 credit hours must be 300-level or above).
3 credit hours of statistics.

Minor in Sociology

Students must take 18 credit hours to minor in sociology. Students should consult with a faculty advisor to select the nine credit hours of unspecified sociology courses. The advisor will suggest a combination of courses which focus on the student's interests and concerns. The required courses are listed below:

Required Courses

SO 113 Sociology
SO 250 Research Methods
SO 413 Social Theory

9 credit hours of sociology (two at the 300-level or above, selected with your advisor).

Minor in Anthropology

Students must take 18 credit hours to minor in anthropology. Students should consult with a faculty advisor to plan their program. The required courses are listed below:

Required Courses

SO 220 Physical Anthropology and Archaeology
SO 221 Cultural Anthropology
SO 250 Research Methods *or* SO 450 Research Seminar

9 credit hours of anthropology.

Social Welfare

Acting Coordinator: Allen L. Sack, Ph.D.

The department offers a bachelor of arts degree with a major in social welfare which focuses on integrating a student's knowledge of the social welfare system, human behavior and the social environment, the social work profession, social research, practice skills and practice experience in preparation for beginning social work practice in a variety of settings and institutions such as state and local social service agencies, child welfare programs, group homes, crisis intervention programs, medical social work departments and police and correctional human programs. Students have been assigned responsibilities in various programs through the practice of casework, group work, social treatment, community organization, research administration and policy development.

B.A., Social Welfare

The curriculum is designed to meet the educational needs of students interested in social work careers, of students who are preparing for graduate professional education in social work, of students who wish to be informed about social welfare needs and services with a view to voluntary participation in community social welfare programs, and of students interested in preparing for graduate education in sociology or related fields such as counseling, gerontology, law, urban planning and health service administration.

All students in the B.A. in social welfare program must complete 120 credit hours. These courses must include the university core requirements listed earlier in the catalog, and a minimum of 27 credit hours of study in social welfare including two semesters (6 credit hours) in a field placement, a social service agency in the New Haven area. A professional person at the agency trains, supervises and evaluates each student. Seminars are held weekly to facilitate the integration of the theory learned in class and the practice methods used in the field. Each student masters a body of theory and applies this knowledge and skill to human problems in their field placement.

Electives are selected in consultation with an advisor and should be chosen to complement both the personal needs and professional goals of the student. The required courses are listed below:

Required Courses

SO 113 Introduction to Sociology
SO 214 Deviance or SO 114 Contemporary Social Problems
SO 250 Research Methods
SW 220 Introduction to Social Welfare
SW 340 Group Dynamics
SW 350 Social Welfare as a Social Institution
SW 401 Field Instructions I
SW 402 Field Instructions II
SW 415 Methods of Intervention I
SW 416 Methods of Intervention II
SW 475 Issues in Social Work
P 216 Psychology of Human Development
P 301 Statistics for the Behavioral Sciences
P 336 Abnormal Psychology

3 credit hours elective.

Minor in Social Welfare

Students interested in a minor in social welfare are required to complete 18 credit hours of social welfare courses including those listed below:

Required Courses

SW 220 Introduction to Social Welfare
SW 401 Field Instruction I
SW 402 Field Instruction II
SW 415 Methods of Intervention I
SW 416 Methods of Intervention II
SW 475 Issues in Social Work

SCHOOL OF BUSINESS

Marilou McLaughlin, Ph.D., dean

As the business world rapidly grows more complex, the need increases for a sophisticated and scientific approach to business, government and other organizational forms. The primary objective of the UNH business school is to prepare students for responsible and important jobs in management. A post-industrial society such as ours requires imaginative, analytical people. To meet this need, the School of Business provides a broad professional education preparing students to assume significant managerial positions. The curriculum emphasizes analytical tools needed to solve the intricate problems of today's organizations.

Graduate programs in business are primarily professional degree programs in which the major objective is to develop practitioners of business and administration. Many men and women who are enrolled are at the same time employed in various public and private organizations and are working toward their degrees on a part-time basis.

Programs

Bachelor of Science

Accounting
- Financial Accounting
- Managerial Accounting

Air Transportation Management
Business Administration
Business Data Processing
Business Economics
Communication
Criminal Justice
- Law Enforcement Administration
- Correctional Administration
- Forensic Science

Finance
International Business
Law Enforcement Science
Management Science
Marketing
Personnel Management
Public Administration
Security Management
Shipyard Management

Associate in Science

Business Administration
Communication
Criminal Justice
- Correctional Administration
- Law Enforcement Administration

Certificate Programs

Economics
Law Enforcement Science
Mass Communication
Quantitative Analysis
Security Management

Master of Business Administration

Master of Business Administration for Executives (EMBA)

Master of Public Administration

Master of Science

Accounting
Criminal Justice
Forensic Science
Industrial Relations
Taxation

Senior Professional Certificates

Accounting and Taxation
Economic Forecasting
Finance
General Management
Human Resources Management
International Business
Marketing
Public Management
Quantitative Analysis

General Policies in the School of Business

- Each student will be assigned an academic advisor.
- A student may select a business major after consultation with the advisor or the appropriate chairman.
- A student may select a minor after consultation with the advisor or the appropriate chairman.
- No coordinated course offering credit will be accepted for UNH juniors or seniors from two-year colleges. (See also "Coordinated Course" section on page 47.)
- To receive a degree from the School of Business, the last thirty credits must be awarded by the University of New Haven.
- A minimum of 120 semester hours is required for graduation.

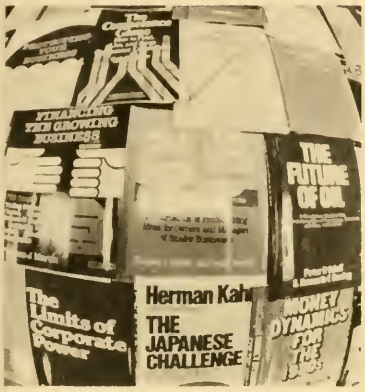
Admission Criteria

An applicant for admission to business programs must be a graduate of an approved secondary school or the equivalent. While no set program of high school subjects is prescribed, an applicant must meet the standard of the university with respect to the high school average. Applicants must present 15 acceptable units of satisfactory work, including nine or more units of college preparatory subjects. Satisfactory scores on College Entrance Examination Board Scholastic Aptitude Tests (S.A.T.) or American College Testing (A.C.T.) program tests are required. See the Admission section in the beginning of this catalog.

University Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the new university core curriculum. See page 57 for the list of requirements. It should be noted that, whenever possible, liberal arts and lower division requirements should be completed by the end of the sophomore year.

Common Courses for Business Programs



Students earning bachelor degrees in School of Business programs must complete the basic business curriculum shown below, as well as the university core requirements and the course requirements for their chosen major.

Required Courses

A 101 Introduction to Financial Accounting*
A 102 Introduction to Managerial Accounting*
CO 100 Human Communication
EC 100 Economic History of the U.S.
EC 133 Principles of Economics I
EC 134 Principles of Economics II
IB 312 International Business
MG 125 Management and Organization
MK 105 Principles of Marketing
LA 101 Business Law I

1 public administration or management course.
1 advanced economics course.
6 credits of statistics and/or research methods courses.

*Accounting majors and students who wish to take advanced accounting courses must substitute A 111 and A 112, which are prerequisites for all advanced accounting courses.

Department of Accountancy

Chairman: Robert E. Rainish, Ph.D.

Professors: William S. DeMayo, M.B.A., New York University; Kai K. Nordlund, S.J.D., New York Law School

Associate Professors: Ernest M. Dichele, C.P.A., LL.M., Boston University School of Law; James McMahon, Ph.D., New School of Social Research; Robert Rainish, Ph.D., City University of New York; Richard Reimer, C.P.A., M.S., Columbia University; Henry D. Vasileff, Ph.D., University of Toronto

Assistant Professors: Michael Rolleri, C.P.A., M.B.A., University of Connecticut; Robert E. Wnek, C.P.A., LL.M., Boston University School of Law

Practitioners-in-Residence: David Rubin, M.B.A., University of Cincinnati, C.P.A.; Jose Oaks, C.P.A., M.B.A., New York University; Jeffrey Williams, C.P.A., C.M.A., M.B.A., University of Bridgeport

The department of accountancy is responsible for courses in accounting, business law, finance and taxation. While the study of accountancy has its roots in economic theory, the courses emphasize practical application to real world problems.

The study of accounting emphasizes the economic decision-making process as well as the principles and procedures used to produce the information required by decision makers. Accounting promotes an

appreciation for not only the nature of accounting information but also the use of that information in the complex process of decision making by individuals, business firms and government. The department of accountancy at the University of New Haven seeks to serve the educational needs of those involved in all areas of accounting—public, private, or governmental.

Students must select from a financial accounting or managerial accounting program of study.

Finance, as an area of study, is designed to promote an analytical appreciation of the financial system and the financial decision-making process in which society, through its individuals, business firms and governments, is continually engaged.

In particular, the study of finance provides a structured analysis of the financial system and the financial decision-making process as determinants of the economic wealth of the individual, the business firm and the nation. The study of finance enables the student to pursue the preparation required for a number of financial decision-making positions in government and industry, including the entire variety of financial institutions.

There are many career opportunities for students in the business world, government and academia. Accounting and finance professionals are needed by consulting firms, public accounting firms and private industry, as well as by federal, state and local governments. Because of the practical orientation of the program, future business entrepreneurs can benefit by the background obtained in these programs.

The department of accountancy at the University of New Haven offers courses at the bachelor and master's level for the study of accounting. The department also offers undergraduate career minors in real estate and insurance to students majoring in financial or managerial accounting. The career minor is designed to offer specialized study to those planning careers in the real estate or insurance fields.

Accounting students may select electives from other disciplines such as computer science, economics and finance.

On the graduate level, the department offers programs leading to a master of science in accounting and in taxation. A concentration in accounting is also available to students enrolled in the master of business administration program.

Graduate course offerings for the study of finance may be selected to comprise a concentration in finance by the student pursuing the master of business administration degree. Complete information about these graduate programs is available in the Graduate School catalog.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.S., Financial Accounting

The financial accounting major is selected by those students wishing to pursue a career in public accounting leading to the certified public accountant (C.P.A.) license. The integration of business law, taxation and finance into the program provides the student with the necessary academic background to meet the challenges of the accounting profession.

Required Courses

Students earning a B.S. in accounting are required to complete 121 credit hours including the university core curriculum and those courses listed below:

A 111 Introductory Accounting I
A 112 Introductory Accounting II
A 221 Intermediate Financial Accounting I
A 222 Intermediate Financial Accounting II
A 223 Cost Accounting I
A 224 Cost Accounting II
A 331 Advanced Financial Accounting I
A 332 Advanced Financial Accounting II
A 333 Auditing Principles
A 334 Auditing Principles
A 335 Federal Income Taxation
A 336 Federal Income Taxation
LA 101 Business Law I
LA 102 Business Law II
LA 103 Business Law III

B.S., Managerial Accounting

The managerial accounting major is selected by students wishing to pursue a career in private accounting as management accountants including the possible attainment of the certificate of management accounting (C.M.A.). The program provides for courses at the advanced levels in finance and economics, in order to prepare the student for the kinds of decisions likely to be made within the organizational structure.

Required Courses

Students earning a B.S. in managerial accounting are required to complete 121 credit hours including the university core curriculum and those courses listed below:

A 111 Introductory Accounting I
A 112 Introductory Accounting II
A 223 Cost Accounting I
A 224 Cost Accounting II
A 221 Intermediate Financial Accounting I
A 222 Intermediate Financial Accounting II
A 225 Advanced Managerial Accounting
A 331 Advanced Financial Accounting I
A 333 Auditing Principles
A 335 Federal Income Taxation I
A 336 Federal Income Taxation II
EC 420 Applied Economic Analysis
FI 229 Corporate Financial Management
MG 350 Advanced Management
QA 333 Statistics II

B.S., Finance

Required Courses

Students earning a B.S. in finance are required to complete 121 credit hours including the university core curriculum and those courses listed below:

FI 113 Business Finance
FI 214 Principles of Real Estate
FI 229 Corporate Financial Management
FI 230 Investment Analysis
FI 341 Financial Decision Making
FI 345 Financial Institutions and Capital Markets
A 221 Intermediate Financial Accounting I
A 222 Intermediate Financial Accounting II
EC 314 Public Finance and Budgeting

EC 336 Money and Banking
EC 340 Microeconomic Analysis
EC 341 Macroeconomic Analysis
EC 420 Applied Economic Analysis
QA 333 Statistics II

Department of Communication

Chairman: Jean-Richard Bodon, Ph.D.

Professor: M.L. McLaughlin, Ph.D., University of Wisconsin

Associate Professor: Steven A. Raucher, Ph.D., Wayne State University

Assistant Professors: Jean-Richard Bodon, Ph.D., Florida State University; Eva Bronstein, Ph.D., Graduate School, City University of New York

Instructor: James C. Paty, M.A., University of Alabama

Practitioner-in-Residence: Kathleen Long, M.S., Southern Illinois University

The communication programs at the University of New Haven allow students to develop their interpersonal and mass communication skills and awareness.

The programs for communication majors are built around studies designed for students with a wide range of interests. Whether students envision their future in communication to be that of a television camera person, an on-the-air news broadcaster, a researcher or producer for documentary films or a researcher investigating why people say what they say and the effects of those utterances on society, it is the department's objective to assist students attain their goals.

The department of communication works closely with local media and with other departments in the university. Students and faculty have a close working relationship with the management and staff of WNHU-FM, the student radio station of the University of New Haven, and are involved in programming for the local cable television system.

Students majoring in communication at the University of New Haven will acquire the professional skills needed to enter the field after earning their undergraduate degrees. The degree programs allow sufficient flexibility to accommodate any communication major's career objective.

The department of communication enjoys institutional memberships in the Connecticut Broadcasters Association and the International Association of Business Communicators. Faculty members and some communication students belong to such professional organizations as the International Communication Association, the Sigma Delta Chi professional journalism society, the Speech Communication Association, the American Film Institute and the Broadcast Educators Association.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.S., Communication

The student majoring in communication at the University of New Haven will have common programs with other majors for the first several terms. The initial communication courses introduce the students to the broad field of communication and the processes involved in the study of human and mass interaction. With this initial orientation complete, the student is better qualified to make an intelligent choice of specialty within the department.

The bachelor of science degree program, offered through the School of Business, emphasizes the production, technical aspects and management of film, video, audio and journalism. The student majoring in this program is usually oriented toward programming, production, media management, on-the-air skill development and writing.

Required Courses

All students earning a B.S. in communication must complete 121 credit hours including the university core curriculum. These courses must include 39 credit hours of communication courses including those listed below:

CO 100 Human Communication
CO 101 Fundamentals of Mass Communication
CO 103 Audio in Media
CO 302 Social Impact of Media
J 101 Journalism I

TV or film sequence:

CO 214 Elements of Film,
CO 220 Film Production I *and*
CO 320 Film Production II
or
CO 212 Television Production I,
CO 312 Television Production II *and*
CO 412 Advanced Television Production

B.A., Communication

For more information on the B.A. in communication, see page 73 in the School of Arts and Sciences section of this catalog.

A.S., Communication

Upon successful completion of the first two years of the four-year bachelor of science program in communication, students may petition to receive an associate in science degree with a major in communication. Students should consult with an advisor for specific information.

Minor in Communication

A total of 18 semester hours of communication course credits must be earned in order for a student to declare the field as a completed minor area of study. This work must include CO 100 Human Communication. The balance of the minor program is worked out in individual conference with the student and his or her communication department advisor.

Communication Certificate Programs

Coordinator: Jean-Richard Bodon, Ph.D.

The communication department offers certificates in journalism and mass communication. Students must complete 15 credit hours to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Mass Communication Certificate

This program offers options in television production, radio production, writing for media, interpersonal communication or a combination of radio/television and film. All students are required to take 15 credit hours, including the courses listed below:

Required Courses

CO 100 Human Communication
CO 101 Fundamentals of Mass Communication
CO 302 Social Impact of Media

Journalism Certificate

For more information on journalism certificate requirements refer to the School of Arts and Sciences under the communication programs.

Department of Economics and Quantitative Analysis

Chairman: Joseph A. Parker, Ph.D.

Professors: Phillip Kaplan, Ph.D., The Johns Hopkins University; William S.Y. Pan, Ph.D., Columbia University; Joseph A. Parker, Ph.D., University of Oklahoma; Alan Plotnick, Ph.D., University of Pennsylvania; Franklin B. Sherwood, Ph.D., University of Illinois; John J. Teluk, M.A., Free University of Munich

Associate Professors: George Karatzas, Ph.D., New York University; Ward Theilman, Ph.D., University of Illinois

Assistant Professor: John B. Moore, Ph.D., Southern Illinois University

Lecturer: John M. Carfora, M.S., London School of Economics/Political Science; Mary Martha Woodruff, M.A., Murray State University, M.S.I.R., University of New Haven

Economics courses provide a basis for an understanding of economic structures, a wide range of domestic and international issues and trends in the economic life of modern societies. These courses offer training in analysis of economic problems as an aid to the evaluation of economic policies.

Introductory courses are designed to provide the foundation of economic knowledge which every citizen in a modern complex society should have so they may understand the decisions of individual economic units and the operation of a national economy as a whole.

Advanced courses are designed primarily for economics and business majors. They cover in depth specific economic topics. They also prepare students for economic research and management positions in financial institutions, individual organizations, government or graduate study and teaching.

The department of economics and quantitative analysis has two major objectives: to function as a service department for other departments in the School of Business and other schools of the university and to offer a specialized education to students majoring in economics.

Students majoring in economics may choose either a bachelor of science in business economics or a bachelor of arts in economics.

B.S., Business Economics

The University of New Haven program in business economics is designed to prepare students for research or executive positions in business or government.

Required Courses

Students earning a B.S. in business economics must complete 120 credit hours includiing the university core curriculum and those courses listed below:

EC 133 Principles of Economics I
EC 134 Principles of Economics II
EC 312 Contemporary Economic Problems
EC 320 Mathematical Methods in Economics *or* EC 410 Econometrics
EC 336 Money and Banking
EC 340 Microeconomic Analysis
EC 341 Macroeconomic Analysis
EC 350 Economics of Labor Relations
EC 420 Applied Economic Analysis
EC 442 Economic Thought
FI 229 Corporate Financial Management
QA 216 Statistics
QA 333 Statistics II

6 credit hours of economics electives.

B.A., Economics

For information about the B.A. program in economics, see page 75 in the School of Arts and Sciences section of this catalog.

Minor in Economics

Eighteen credit hours of economics courses are required for a minor including those listed below:

Recommended Courses

EC 133 Principles of Economics I
EC 134 Principles of Economics II
EC 340 Microeconomic Analysis
EC 341 Macroeconomic Analysis

9 credits of economics electives to be chosen from:

EC 312 Contemporary Economic Problems
EC 314 Public Finance and Budgeting
EC 345 Comparative Economic Systems
QA 216 Probability and Statistics

Minor in Quantitative Analysis

Eighteen credit hours of quantitative analysis courses are required for a minor including those listed below:

QA 118 Business Mathematics
QA 128 Business Statistics
QA 216 Probability & Statistics
QA 250 Applied Business Statistics
QA 314 Field Research
QA 333 Advanced Statistics

Economics and Quantitative Analysis Certificate Programs

Coordinator: Joseph A. Parker, Ph.D.

The department offers two certificate programs. Students are required to complete fifteen credit hours for each certificate. Courses may be taken for credit or on a non-credit basis. If the latter, it is not necessary to apply for formal admission to the university. However, any credit earned may be applied to a formal degree program.

Certificate in Economics

Required Courses

QA 118 Business Mathematics
QA 216 Probability and Statistics
QA 250 Applied Business Statistics
QA 314 Field Research
QA 333 Advanced Statistics

Certificate in Quantitative Analysis

Required Courses

QA 118 Business Mathematics
QA 216 Intermediate Statistics I
QA 250 Applied Business Statistics
QA 314 Field Research
QA 333 Advanced Statistics

Department of Management

Chairman: Wilfred Harricharan, Ph.D.

Professors: Wilfred R. Harricharan, Ph.D., Cornell University; Shiv Sawhney, Ph.D., New York University; Frank A. Scalia, Ph.D., Carnegie-Mellon University.

Associate Professor: Warren J. Smith, M.B.A., Northeastern University

Assistant Professor: Frank K. Flaumenhaft, M.B.A., New York University

Instructor: Richard Bassett, M.B.A., University of New Haven

At this time in history when all of society's systems—governmental, technological, societal, educational, industrial and military as well as business—are becoming more sophisticated and complex, the need for skilled managers has never been greater. As automation frees people from having to deal directly with materials and the computer lessens the burden of processing data, today's managers are able to direct their energies to planning, organizing, directing and controlling—the four major functions of management.

The management programs at UNH seek to provide students with the foundations of knowledge and skill necessary for moving to positions of responsibility in management. The theories and methods of analyzing decisions studied prepare students for entry-level jobs, as well as sharpen the skills of those already holding organizational positions. The underlying concept is to combine adequate specialization with the integrative point of view required of the manager.

The department of management offers degree programs in the followings areas of specialization: associate of science degree program in business administration and bachelor of science degree programs in air transportation management, business administration, business data processing, management science and personnel management. The department also offers a career minor in shipyard management.

Management Club

The department of management sponsors a student chapter of the Society for the Advancement of Management (SAM) which is open to students interested in the art and science of professional management. This organization provides students and faculty with a professional and social experience that cannot be found in the classroom. Speakers, films, discussion groups and other activities are scheduled and open to all those interested in attending.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.S., Air Transportation Management

The aviation industry attracts individuals from many diverse backgrounds with a variety of skills. Many dynamic career opportunities exist for students interested in aviation. These include professional piloting, as well as various aspects of management and engineering in general aviation, government, airlines and manufacturing.

The bachelor of science degree in air transportation management provides the student selecting the flight option with the technical aviation background required of the professional pilot. A strong foundation of management and specific aviation managment courses providing knowledge and skills required of pilots and executives in the aviation industry is an integral part of this program.

A two-year associate in science degree in aviation science is also offered by the university within the School of Professional Studies and Continuing Education.

Required Courses

Students earning the B.S. in air transportation management must complete 120 credit hours or 130 hours if the flight option is chosen. (Flight option courses are marked *.) These courses must include the university core curriculum and the courses listed below:

AE 100 Aviation Science—Private
AE 105 Primary Flight—Solo*
AE 110 Aviation Meteorology
AE 115 Private PilotFlight*
AE 130 Aviation Science—Commercial
AE 135 Commercial Flight I*
AE 140 Concepts of Aerodynamics
AE 145 Commercial Flight II*
AE 200 Aviation Science—Instrument
AE 205 Commercial Flight III*
AE 210 Aircraft Powerplants, Systems and Components
AE 230 Flight Instructor Seminar
AE 235 Instructor Flight *or* AE 245 Multi-Engine Rating*
AE 310 Air Transportation Management
AE 400 Airport Management
AE 410 Corporate Aviation Management
AE 430 Aviation Safety Seminar
MG 350 Advanced Management
MK 470 Business Logistics

4 business concentration electives.
M 115 & 116 may substitute for QA 118 & 128 in the basic business curriculum.

B.S., Business Administration

In order to function effectively in a variety of management situations, administrators should be conversant with all major areas of management. Moreover, they should have a thorough understanding of the interrelationships which exist among the different functional groups within organizations. This point of view is essential for managers who are to participate effectively with others in the administrative group and who are to administer activities in their areas of responsibility in the best interests of the entire organization.

Required Courses

Students earning the B.S. in business administration must complete 120 credit hours. These courses must include the university core curriculum and the courses listed below:

MG 125 Management and Organization
MG 231 Industrial Relations
MG 317 Small Business Management
MG 324 Development of Managerial Thought
MG 350 Advanced Management
MG 415 Corporate Management

MG455 Managerial Effectiveness
MG 512 Contemporary Issues in Business & Society
MG 550 Business Policy
MK 442 Marketing Research and Information Systems
MK 515 Marketing Management
CO 100 Human Communication
EC 340 Microeconomic Analysis
EC 420 Applied Economic Analysis
FI 113 Finance

1 business elective (3 credit hours)

B.S., Business Data Processing

Management use of quantitative methods has been increasingly reinforced by the application of high speed computer technology and techniques in organizations. The advances in simulation, mathematical programming, decision theory and computer control systems have generated a need for personnel well trained in both the management sciences and the computer and information sciences.

Required Courses

Students earning the B.S. in business data processing must complete 121 credit hours. These courses must include the university core curriculum and the courses listed below:

IE 102 FORTRAN
IE 224 Advanced FORTRAN
IE 225 Advanced COBOL
IE 332 PL/1
IE 334 Assembly Language
EC 420 Applied Economic Analysis
MG 200 Business Systems Analysis
MG 205 EDP Communication and Documentation
MG 350 Advanced Management
MG 400 Management Planning and Control Systems
MG 460 Information Systems for Operations & Management
MG 512 Contemporary Issues in Business and Society
MG 550 Business Policy
MG 560 Business Systems Simulation

B.S., Management Science

The purpose of this major is to make available to the student a program that combines classical education in organizational management with modern training in quantitative methods. The fundamental assumption on which the program is based is that it is desirable for a student to acquire a knowledge of business and management with literacy and experience in the areas of quantitative techniques.

Advanced work in management consists of case analysis, small group discussions, seminars, simulation exercises ("management games") and field studies in actual organizations.

Required Courses

Students earning the B.S. in management science must complete 121 credit hours. These courses must include the university core curriculum and the courses listed below:

MG 125 Management and Organization
MG 231 Industrial Relations
MG 324 Development of Management Thought
MG 350 Advanced Management
MG 400 Management Planning and Control Systems
MG 415 Comparative Management
MG 455 Managerial Effectiveness
MG 512 Contemporary Issues in Business and Society
MG 515 Management Seminar
MG 550 Business Policy
MK 515 Marketing Management
QA 250 Quantitative Techniques II
EC 420 Applied Economic Analysis
FI 113 Business Finance

Business electives (9 credit hours).

B.S., Personnel Management

The major responsibility of personnel management is to attract, develop and retain qualified personnel for the organization. The major applies the research of the behavioral and social sciences in manpower planning, personnel selection, compensation, planning adjustment to change and the development of organizational performance. Industrial relations examines the organization of workers and union-management relations.

Majors in this field study established and developing systems for the resolution of conflict and the building of viable, accommodative relationships between employers and employees. Emphasis is placed upon the interaction of labor, management and the government in establishing rates, hours and conditions of work. The approach is keyed to an institutional analysis of collective manpower problems and issues within an economic and organizational framework.

Required Courses

Students earning the B.S. in personnel management must complete 121 credit hours. These courses must include the university core curriculum and the courses listed below:

EC 350 Economics of Labor Relations
FI 113 Business Finance
FI 227 Risk and Insurance
MG 205 EDP Communication and Documentation
MG 231 Industrial Relations
MG 324 Development of Managerial Thought
MG 350 Advanced Management
MG 400 Management Planning and Control Systems
MG 455 Managerial Effectiveness
MG 512 Contemporary Issues in Business and Society
MG 515 Management Seminar
MG 550 Business Policy
MK 442 Marketing Research and Information Systems
P 111 Introduction to Psychology
P 212 Business and Industrial Psychology
SH 100 Safety Organization and Management
SO 113 Sociology

A.S., Business Administration

To earn the A.S. in business administration, students must complete 60 credit hours including those courses listed below:

Required Courses

A 111 Introductory Accounting I
A 112 Introductory Accounting II
E 105 Composition
E 110 Composition and Literature
EC 100 Economic History of the U.S.
EC 133 Principles of Economics I
EC 134 Principles of Economics II
HS 101 Foundations of the Western World
IE 107 Introduction to Data Processing
LA 101 Business Law
MG 125 Management and Organization
MK 105 Marketing
QA 118 Business Math
QA 128 Quantitative Techniques
QA 216 Statistics

Minor in Business Administration

A total of 18 semester hours of business course credits must be earned in order for a student to declare the field as a completed minor area of study. The courses required for a minor in business administration are listed below:

A 101 Introduction to Financial Accounting
IB 312 International Business
MG 125 Management and Organization
MG 231 Industrial Relations
MK 105 Principles of Marketing
RT 121 Introduction to Retailing

Plus one of the following:
MG 350 Advanced Management
MG 324 Development of Managerial Thought

Minor in Management

A total of 18 semester hours of business course credits must be earned in order for a student to declare the field as a completed minor area of study. The courses required for a minor in management are listed below:

MG 125 Management and Organization
MG 324 Development of Managerial Thought
MG 350 Advanced Management
MG 415 Comparative Management
MG 455 Managerial Effectiveness
MG 550 Business Policy

Career Minor in Shipyard Management

The career minor in shipyard management is designed to give students majoring in management science specialized training in the managerial and planning skillls needed in the shipbuilding industry today.

Required Courses

SM 410 World Shipbuilding
SM 412 Shipyard Management—Finance
SM 414 Shipyard Management—Planningand Control
SM 415 Shipyard Management—Marketing

Department of Marketing and International Business

Chairman: Wilfred Harricharan, Ph.D.

Professor: Thomas Katsaros, Ph.D., New York University

Associate Professors: Robert P. Brody, D.B.A., Harvard University; Mohamed Gaber, Ph.D., New York University; Alfred Seigle, Ph.D., Columbia University; Bernard Wiener, M.B.A., New York University.

The study of marketing comprises both managerial and societal perspectives. Emphasis is placed heavily on the coordination of product, promotion, price and distribution policies optimally designed to relate the firm to its competitive environment. Societal dimensions include issues in consumer protection, legal and social responsibilities of the firm, and analyses of marketing's contribution to the total society.

International business is an interdisciplinary program which draws on areas of marketing, management, finance and economics in order to develop a multinational perspective on contemporary business opportunities throughout the world. It deals with the problems of developing and adapting business practices to operate within different economic, political and cultural systems.

Marketing Club

The department of marketing and international business sponsors a student chapter of the American Marketing Association (AMA), which is open to students interested in the art and science of marketing. The student chapter provides students and faculty with a professional and social experience that cannot be found in the classroom. Speakers, films, discussion groups and other activities are scheduled and open to all those interested in attending.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.S., International Business

International business is an interdisciplinary program which draws on areas of marketing, management, finance and economics in order to develop a multinational perspective on contemporary business opportunities throughout the world. It deals with the problems of developing and adapting business practices to operate within different economies, different political systems and different cultures.

A background in international business prepares the student for careers in both the private and public sectors, as well as in international non-profit institutions.

Required Courses

Students earning a B.S. in international business must complete 121 credit hours. These courses must include the university core curriculum and the courses listed below:

IB 312 International Business
IB 321 Operation of the Multinational Corporation
IB 549 International Business Policy *or* IB 599 Independent Study
EC 440 Economic Development
FI 113 Business Finance
FI 325 International Finance
MG 205 EDP Communication and Documentation
MG 350 Advanced Management
MG 415 Comparative Management
MG 512 Contemporary Issues in Business
MG 550 Business Policy
MK 413 International Marketing Management
MK 442 Marketing Research and Information Systems
PS 241 International Relations
QA 216 Statistics
RT 121 Introduction to Retailing

B.S., Marketing

Marketing focuses on activities instrumental to the efficient flow of goods and services from producers to consumers. Marketing concepts are widely applied to government agencies, political campaigns, hospitals, and various other social organizations, as well as business and industry.

The study of marketing includes both managerial and societal perspectives. Managerial emphasis is placed heavily on the coordination of product, promotion, price and distribution policies optimally designed to relate the firm to its competitive environment. Societal dimensions include issues in consumer protection, legal and social responsibilities of the firm, and analyses of marketing's contribution to the total society.

Individual coursework is primarily designed to prepare majors for either a career in business or administration. Students may specialize in such areas as advertising, sales, logistics, marketing research, buyer behavior or marketing management.

Required Courses

Students earning a B.S. in marketing must complete 121 credit hours. These courses must include the university core curriculum and the courses listed below:

MK 105 Principles of Marketing
MK 205 Consumer Behavior
MK 302 Industrial Marketing
MK 307 Advertising and Promotion
MK 413 InternationalMarketing Management
MK 442 Marketing Research and Information Systems
MK 460 Consumer Protection
MK 470 Business Logistics
MK 515 Marketing Management
MG 350 Advanced Management
MG 455 Managerial Effectiveness
MG 512 Contemporary Issues in Business and Society
IB 312 International Business
EC 340 Microeconomic Analysis
FI 113 Business Finance
QA 216 Statistics

Other courses to be selected with an advisor.

Minor in International Business

A total of 18 semester hours of business course credits must be earned in order for a student to declare the field as a completed minor area of study. The courses required for a minor in international business are listed below:

EC 342 International Economics
IB 312 International Business
IB 321 Operation of the Multinational Corporation
MG 125 Management and Organization
MG 415 Comparative Management
MK 105 Principles of Marketing

Minor in Marketing

A total of 18 semester hours of business course credits must be earned in order for a student to declare the field as a completed minor area of study. The courses required for a minor in marketing are listed below:

MK 105 Principles of Marketing
MK 205 Consumer Behavior
MK 307 Advertising and Promotion
MK 442 Marketing Research and Information Systems *or* RT 121 Introduction to Retailing
MK 515 Marketing Management

and a course in international business, with the approval of the chairman.

Department of Public Management

Chairman: Lynn Hunt Monahan, Ph.D.

Criminal Justice

Coordinator of Undergraduate Studies: Gerald D. Robin, Ph.D.

Security Management Program: David A. Maxwell, J.D., coordinator

Forensic Science Program: R.E. Gaensslen, Ph.D., director; Henry C. Lee, Ph.D., practitioner-in-residence, chief criminalist–Connecticut State Police Forensic Science Laboratory

Professors: R.E. Gaensslen, Ph.D., Cornell University; Robert D. Meier, Ph.D., Columbia University; L. Craig Parker, Ph.D., State University of New York at Buffalo; Gerald D. Robin, Ph.D., University of Pennsylvania

Associate Professors: Richard E. Farmer, Ed.D. Boston University; Lynn Hunt Monahan, Ph.D., University of Oregon

Assistant Professor: David A. Maxwell, J.D., University of Miami

Practitioners-in-Residence: Lloyd S. Goodrow, J.D., University of Connecticut; Henry C. Lee, Ph.D., New York University

Public Administration

Associate Professor: Jack Werblow, Ph.D., University of Cincinnati

Assistant Professor: Catherine Wiggins, Ph.D., New York University

Criminal Justice

The criminal justice system is a formal mechanism of control through which social order is maintained. The study of this system is approached in an interdisciplinary manner involving law, the physical sciences and the social sciences. Through the use of both conventional and innovative techniques, including lectures, written assignments, seminars, workshops, internships and independent research and study, an attempt is made to provide students with the opportunity to gain a wide variety of insights and experiences.

There is a full range of career opportunities available in criminal justice at the local, state and national levels. Because of its interdisciplinary approach, the study of criminal justice fills the needs of students seeking careers in teaching, research, and law, and of the inservice personnel seeking academic and professional advancement.

The department of public management at the University of New Haven offers courses from the associate to the master's level. Complete information about the master of science degree in criminal justice is available in the graduate catalog.

Undergraduate study of criminal justice concentrates on five major areas of study, enforcement administration, correctional administration, tion, forensic science, law enforcement science, and security management.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.S., Criminal Justice–Law Enforcement Administration

This program prepares students for careers in federal, state and local law enforcement agencies, public and private security forces, planning agencies and other related settings. The curriculum focuses on the roles, activities and behaviors of people with regard to maintaining law and order, providing needed services, protecting life and property and planning and research.

Required Courses

Students earning the B.S. in criminal justice–law enforcement administration must complete 122 credit hours, including the university core curriculum and those courses listed below:

CJ 100 Introduction to Criminal Justice I
CJ 101 Introduction to Criminal Justice II
CJ 102 Criminal Law
CJ 201 Principles of Criminal Investigation
CJ 205 Interpersonal Relations
CJ 215 Introduction to Forensic Science
CJ 217 Criminal Procedures and Evidence I
CJ 218 Criminal Procedures and Evidence II
CJ 221 Juvenile Justice
CJ 300 History of Criminal Justice
CJ 301 Group Dynamics in Criminal Justice
CJ 311 Criminology
CJ 400 Criminal Justice Problems Seminar
CJ 402 Police in Society
CJ 501 Criminal Justice Internship
P 301 Statistics for Behavioral Sciences
P 336 Abnormal Psychology
PA 101 Public Administration
PS 332 Constitutional Law
SO 250 Research Methods

2 natural or physical science courses, one with laboratory.
1 philosophy course.
Electives chosen with advisor.

B.S., Criminal Justice–Correctional Administration

This program is designed to prepare students for careers with federal, state, local and private correctional agencies and institutions. It is concerned with the treatment of offenders, administration, planning and research. The curriculum emphasizes law, social and behavioral sciences and research methodology.

Required Courses

Students earning the B.S. in criminal justice–correctional administration must complete 122 credit hours, including the university core curriculum and those courses listed below:

CJ 100 Introduction to Criminal Justice I
CJ 101 Introduction to Criminal Justice II
CJ 102 Criminal Law
CJ 205 Interpersonal Relations
CJ 209 Correctional Treatment Programs

CJ 217	Criminal Procedures and Evidence I
CJ 218	Criminal Procedures and Evidence II
CJ 221	Juvenile Justice
CJ 300	Foundations of Justice
CJ 301	Group Dynamics in Criminal Justice
CJ 310	Criminal Justice Institutions
CJ 311	Criminology
CJ 400	Criminal Justice Problems Seminar
CJ 408	Correctional Counseling I
CJ 409	Correctional Counseling II
CJ 501	Criminal Justice Internship
P 301	Statistics for Behavioral Sciences
P 336	Abnormal Psychology
P 370	Psychology of Personality
PA 101	Public Administration
PS 332	Constitutional Law
SO 250	Research Methods

2 laboratory courses in the natural or physical sciences.
1 course in philosophy.
Electives chosen with advisor.

B.S., Criminal Justice–Forensic Science

Forensic science is a broad field in which physical and biological sciences are utilized to analyze and evaluate physical evidence related to matters of law. The aim of the program is to provide the appropriate education to men and women in the field of forensic science, as well as to those who are planning careers in forensic sciences. The curriculum is also of value to those in related fields whose professional work requires knowledge of scientific investigation methods.

Required Courses

Those students earning a B.S. in criminal justice–forensic science must complete 136 credit hours, including the university core curriculum and those courses listed below:

CJ 100	Introduction to Criminal Justice
CJ 102	Criminal Law
CJ 201	Principles of Criminal Investigation
CJ 204	Forensic Photography
CJ 215	Introduction to Forensic Science
CJ 303	Forensic Science Laboratory I
CJ 304	Forensic Science Laboratory II
CJ 311	Criminology
CJ 403	Advanced Forensic Science I *or* restrictive elective
CJ 404	Advanced Forensic Science II *or* restrictive elective
CJ 416	Seminar in Forensic Science
CJ 501	Internship *or* CJ 498 Research Project
BI 121	General and Human Biology I
BI 122	General and Human Biology II
BI 131	General and Human Biology Laboratory I
BI 132	General and Human Biology Laboratory II
BI 201	Genetics *or* restrictive elective
BI 303	Histology *or* CH 331 Physical Chemistry I
BI 304	Immunology with Laboratory *or* BI 333 Medical Microbiology with Laboratory
BI 320	Forensic Medicine *or* restrictive elective
BI 362	Biochemistry II with Laboratory *or* CH 332 Physical Chemistry II with Laboratory
CH 115	General Chemistry I
CH 116	General Chemistry II
CH 117	General Chemistry Laboratory I

CH 118 General Chemistry Laboratory II
CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CH 221 Instrumental Methods of Analysis with Laboratory
IE 102 Introduction to Computers: FORTRAN *or* IE 107 Introduction to Data Processing
M 115 Pre-Calculus Mathematics *or* M 117 Calculus I
M 118 Calculus II
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics Laboratory I
PH 106 General Physics Laboratory II
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
SC 509 Scientific Photographic Documentation
SO 113 Sociology

Electives chosen with advisor.

B.S., Law Enforcement Science

This program is designed to provide an interdisciplinary educational program for those people entering law enforcement science fields, especially investigative work. In addition, it is geared toward enhancing the scientific knowledge of those people now holding investigative positions in various enforcement agencies. The curriculum emphasizes law enforcement, forensic science, natural and physical science, mathematics, industrial engineering and the behavioral sciences.

Required Courses

Students earning a B.S. in law enforcemenut science must complete 122 credit hours, including the university core curriculum and those courses listed below:

CJ 100 Introduction to Criminal Justice I
CJ 101 Introduction to Criminal Justice II
CJ 201 Principles of Criminal Investigation
CJ 204 Forensic Photography with Laboratory
CJ 205 Interpersonal Relations
CJ 215 Introduction to Forensic Science
CJ 217 Criminal Procedures and Evidence I
CJ 218 Criminal Procedures and Evidence II
CJ 227 Fingerprints with Laboratory
CJ 303 Forensic Science Laboratory I
CJ 304 Forensic Science Laboratory II
CJ 311 Criminology
CJ 400 Criminal Justice Problem Seminar
CJ 402 Police in Society
CJ 415 Document and Firearms Examination
CJ 416 Seminar in Forensic Science
CJ 501 Criminal Justice Internship *or* CJ 498 Research Project
M 228 Elementary Statistics *or* P 301 Statistics for Behavioral Sciences
PS 332 Constitutional Law

2 laboratory courses in natural or physical sciences.
1 philosophy course.
Electives chosen with advisor.

B.S., Security Management

The program in security management is designed to provide those entering or now holding administrative or managerial positions in private security the necessary skills and know-how to perform effectively and professionally. The program is interdisciplinary in nature and draws from the areas of criminal justice, forensic science, business administration, industrial engineering and the behavioral sciences.

Required Courses

Students earning a B.S. in security management must complete 121 credit hours, including the university core curriculum and those courses listed below:

CJ 100 Introduction to Criminal Justice I
CJ 102 Criminal Law
CJ 105 Introduction to Security
CJ 201 Principles of Criminal Investigation
CJ 203 Security Administration
CJ 205 Interpersonal Relations
CJ 215 Introduction to Forensic Science
CJ 217 Criminal Procedures and Evidence I
CJ 218 Criminal Procedures and Evidence II
CJ 226 Industrial Security
CJ 306 Security Problems Seminar
CJ 311 Criminology
CJ 410 Legal Issues in Private Security
CJ 416 Seminar in Forensic Science
CJ 501 Criminal Justice Internship
FS 402 Arson Investigation I
IE 223 Personnel Administration
MG 200 Business Systems Analysis
P 212 Business and Industrial Psychology
PS 332 Constitutional Law
SH 100 Safety Organization and Management
SH 400 Occupational Safety and Health Legal Standards

2 courses in natural or physical sciences.
1 philosophy course.
12 credit hours electives chosen with advisor.

A.S., Criminal Justice–Law Enforcement Administration

Student completing the first two years of the bachelor of science degree program in criminal justice–law enforcement administration (62 credit hours) are eligible to receive the associate in science degree. Interested students should contact their advisor.

A.S., Criminal Justice–Correctional Administration

Students completing the first two years of the bachelor of science degree program in criminal justice–correctional administration (62 credit hours) are eligible to receive the associate in science degree. Interested students should contact their advisor.

Minor in Criminal Justice

To minor in criminal justice, students must complete 18 credit hours of criminal justice courses, including those listed below:

CJ 100 Introduction to Criminal Justice I
CJ 101 Introduction to Criminal Justice II

Criminal Justice Certificate Programs

Coordinator: Lynn Hunt Monahan, Ph.D.

The department offers certificates in law enforcement science and security management. Students must complete 18 credit hours of required courses to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Law Enforcement Science Certificate

This certificate is designed to provide the fundamentals of criminal investigation techniques and procedures, particularly for those involved in or planning to enter investigative positions in law enforcement agencies in both the private and public sectors. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

CJ 201 Principles of Criminal Investigation
CJ 215 Introduction to Forensic Science
CJ 227 Fingerprints with Laboratory
CJ 303 Forensic Science Laboratory I
CJ 304 Forensic Science Laboratory II
CJ 415 Documents and Firearms Examination

Security Management Certificate

This certificate is a concentrated program of study in management security systems for private business and industry. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

CJ 105 Introduction to Security
CJ 112 Security Methods
CJ 203 Security Administration
CJ 226 Industrial Security
FS 402 Arson Investigation I
SH 100 Safety Organization and Management

Public Administration

The public administration program is designed to prepare students for public service responsibility as government program administrators, civic leaders and managers or private businesses deeply involved in governmental affairs. Stressed are the organization of government services, the behavior of public officials, the manner in which government raises revenue, the nature of public personnel systems, the role of collective bargaining in the public sector, the manner in which decisions on public expenditures are made and public administrative procedures.

An understanding of public administration is also essential for people preparing for careers in law, journalism and every aspect of business. Public administration training can be easily combined with specialized career programs at the University of New Haven.

Public administration students are strongly encouraged to systematically develop their public speaking, group discussion and writing skills through specialized instruction and as a part of their regular public administration course requirements.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.S., Public Administration

All students earning the B.S. in public administration must take the university core curriculum and the basic courses listed below. The balance of the program is tailored to the student's particular interest such as urban planning and management, health administration and personnel managment.

Students also are encouraged to pursue one of the concentrations listed later in this section.

Required Courses

PA 101 Introduction to Public Administration
PA 302 Public Administration Systems and Procedures
PA 404 Public Policy Analysis
PA 408 Collective Bargaining in the Public Sector
EC 314 Public Finance
IE 105 Introduction to Data Processing
PS 216 Urban Government and Politics

Choice of A 101 Introduction to Financial Accounting *or* QA 314 Research Techniques in Business and Government.

Health Administration Concentration

The concentration in health administration requires completion of the basic public administration courses listed earlier in his section, plus the courses listed below:

Required Courses

PA 305 Institutional Budgeting and Planning
PA 308 Health Care Delivery Systems
PA 490 Public Health Delivery Systems
PA 491 Public Health and Environmental Law

City Planning and Management Concentration

The concentration in city planning and management requires completion of the basic public administration courses listed earlier in this section, plus four of the courses listed below:

Required Courses

PA 307 Urban and Regional Management
PA 315 Metropolitan Planning
PA 320 Municipal Finance and Budgeting
PA 316 Urban Housing *or* PA 412 Seminar in Public Administration

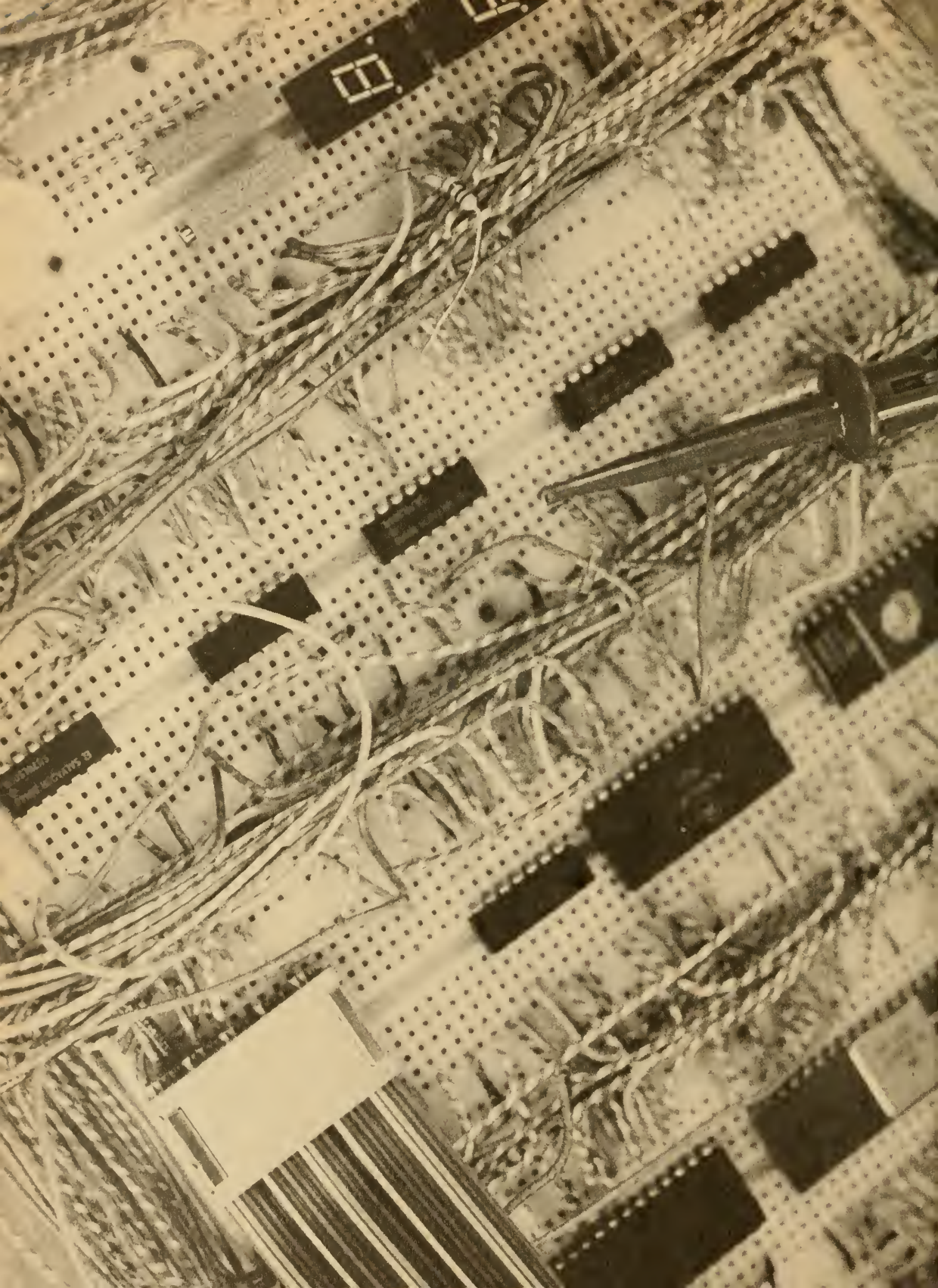
Minor in Public Administration

To obtain a minor in public administration, students must complete these courses:

Required Courses

PA 101 Public Administration
PA 302 Public Administration Systems and Procedures
PA 408 Collective Bargaining in the Public Sector

Two additional public administration courses.



SCHOOL OF ENGINEERING

Konstantine C. Lambrakis, Ph.D., dean

The increasing complexity of technology and the need to match the earth's dwindling resources to the needs of a growing urban society demand more engineers and applied scientists. An engineer capable of meeting the challenges of the future may look forward to a rewarding career.

Because of its broad science and mathematical basis, the typical undergraduate engineering curriculum provides an excellent preparation not only for an engineering career but also for careers or advanced work in other fields such as law, business or medicine.

The School of Engineering at the University of New Haven offers both extensive facilities and well-trained faculty to meet the challenge of this rapidly changing field. Close ties with business and industry are maintained to assess their needs and provide the necessary feedback relative to current professional practices.

Although most of the courses in the curriculum are technological or scientific in nature, particular care is given to the cultural and literary education of the students. Among the required subjects are courses in literature, composition, history and philosophy.

The School of Engineering offers programs leading to the associate in science degree and the bachelor of science degree. At the graduate level the School of Engineering offers programs leading to the master of science degree and the senior professional certificate. Detailed information on these graduate programs is in the Graduate School catalog.

Programs

Bachelor of Science

Chemistry
Chemical Engineering*
Civil Engineering
Computer Science
Chemical Engineering
Civil Engineering
Electrical Engineering
Industrial Engineering
Materials Technology
Mechanical Engineering

Associate in Science

Chemistry
Civil Engineering
Electrical Engineering
Industrial Engineering
Materials Technology
Mechanical Engineering
Shipbuilding and Marine Technology*

**These programs are currently under review for licensure by the State of Connecticut (4-84).*

Master of Science

Computer and Information Science
Electrical Engineering
Environmental Engineering
Industrial Engineering
Mechanical Engineering
Operations Research

Senior Professional Certificate

Computer Applications and Information Systems

Admission Criteria

An applicant for admission to the engineering programs should be a graduate of a secondary school of approved standing and should present 15 acceptable units of secondary school work. These should include four units of English, two units of algebra, one of plane geometry, one half of trigonometry and one unit each of physics and a second science. Deficiencies in English, mathematics and science may be satisfied by summer school attendance, or by an extension of the stated curriculum for one or two semester chosen to fit the student's needs.

Satisfactory placement in the Scholastic Aptitude Test (S.A.T.) in mathematics and English as given by the College Entrance Examination Board, or satisfactory placement in the American College Testing (A.C.T.) program is required.

Choosing a Major

Students in engineering are strongly advised to choose their major by the beginning of the sophomore year. Students who are accepted with academic deficiencies must satisfy those deficiencies before entering the sophomore year.

Those students who are unsure of their major in their sophomore year, or those students who desire to receive formal recognition of the completion of an associate's degree after two years' work, may enroll in the associate in science degree program in engineering.

University Core Curriculum

In addition to school and department requirements, students must fulfill all requirements of the new university core curriculum. See page 57 for information.

General Policy of the School of Engineering

The following definitions apply to all degree programs within the School of Engineering.

Free electives

A free elective is any credit course offered by the university. No faculty approval is required. **Note:** In most programs, School of Business courses are accepted *only* as free electives.

Humanities Electives

These courses are from areas of humanities or social sciences which are meant to bring the engineering student to a better awareness of social responsibilities and related factors in decision-making processes, and to broaden his cultural background. These courses are taken from the non-science departments of the School of Arts and Sciences.

Mathematics Electives

These are courses from the mathematics department at the 200 or higher level, with the current exclusion of M288 Elementary Statistics, which is offered to students in non-technical degree programs. Faculty advisers should be consulted for recommendations on the most relevant mathematics electives for a student's career objectives.

Technical Electives

Technical electives are upper-level courses directly pertinent to a student's major field of study. These electives must be approved by the student's faculty advisor and may be chosen from engineering school courses. Faculty approval is particularly important to ensure that students meet the math requirements of the Accreditation Board for Engineering and Technology.

Professional Accreditation

The curricula leading to the bachelor's degree in civil, electrical, industrial and mechanical engineering are accredited by the Accreditation Board for Engineering and Technology (A.B.E.T.), formerly called the Engineer's Council for Professional Development (E.C.P.D.).

Common Courses for Engineering Curricula — Freshman Year

Bachelor degree programs for engineering majors contain common requirements for the freshman year of study. The course requirements are listed below:

Engineering Requirements

CH 115 General Chemistry I
CH 117 General Chemistry Laboratory I
CH 116 General Chemistry II
CH 118 General Chemistry Laboratory II
E 105 Composition
E 110 Composition and Literature
ES 107 Introduction to Engineering
IE 102 Introduction to Computers: FORTRAN*
M 115 Pre-Calculus Mathematics
M 117 Calculus I
PH 150 Mechanics, Heat and Waves with Laboratory

3 credit hours of a humanities department elective—industrial engineering students substitute HS 121 History of Science; civil engineering students substitute EC 133 Principles of Economics.

*Civil engineering students substitute ME 101.

Department of Chemistry and Chemical Engineering

Chairman: George L. Wheeler, Ph.D.

Professor: Peter J. Desio, Ph.D., University of New Hampshire

Associate Professor: Harris L. Morris, Ph.D., University of Michigan (Jacob Finley Buckman Professor of Chemistry and Chemical Engineering); George L. Wheeler, Ph.D., University of Maryland

Assistant Professor: Michael J. Saliby, Ph.D., State University of New York at Binghamton

Chemical Engineering*

Chemical engineers apply the fundamental scientific principles of chemistry, physics, mathematics and economics to the solution of practical problems. Typically, chemical engineers are engaged in designing, developing and improving processes which convert material and energy resources into new or better products.

Because chemical engineering is the most broadly based of all engineering disciplines, chemical engineers are capable of solving a wide range of technological problems and are highly employable in a wide variety of areas including: manufacturing, chemical processes industries, petroleum, aerospace and nuclear materials, automation and instrumentation, plastics, textiles, food and pharmaceutical processing, corrosion control, pollution control and abatement, biomedical engineering and many others. Chemical engineering is also an excellent background for careers in patent law or medical research.

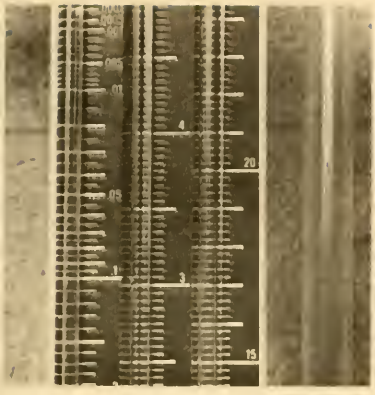
B.S., Chemical Engineering*

The chemical engineering program is demanding, challenging and requires hard work from all students. But for those who are genuinely interested and committed, the program develops the required depth of knowledge to embark on a satisfying professional career or to enter graduate school. The curriculum in chemical engineering is in accordance with accreditation requirements by the Accreditation Board for Engineering and Technology (A.B.E.T.) and the American Institute of Chemical Engineers and includes courses in physics, chemistry and mathematics as well as in chemical, civil, electrical, industrial and mechanical engineering. Courses in the humanities and social sciences are integrated into the curriculum to aid in developing the student's social consciousness and to broaden the educational background. In the freshman year, chemical engineering majors take the same course of study as do all other engineering students. The first chemical engineering courses are taken in the sophomore year, with increased focus during the last two years. In the senior year, students are involved in comprehensive chemical engineering design projects, and may choose four technical elective courses. The electives in the curriculum allow students to design programs that fulfill individual needs and interest.

*This program is currently under review for licensure by the Connecticut State Board of Higher Education (4/84).

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.



Required Courses

Sophomore

CE 201 Statics
CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CM 201 Fundamentals of Chemical Engineering I
CM 202 Fundamentals of Chemical Engineering II
M 118 Calculus II
M 203 Calculus III
ME 204 Dynamics
ME 301 Thermodynamics I
PH 205 Electromagnetism/Optics with Laboratory

Junior

CH 331 Physical Chemistry I with Laboratory
CH 332 Physical Chemistry II with Laboratory
CM 311 Chemical Engineering Thermodynamics
CM 321 Reaction Kinetics/Reactor Design
EC 133 Principles of Economics
M 204 Differential Equations
ME 321 Fluid Mechanics
ME 404 Heat and Mass Transfer

3 credit hours of an English or philosophy elective.
3 credit hours of a mathematics elective.

Senior

CM 401 Mass Transfer Operations
CM 411 Chemical Engineering Laboratory
CM 421 Plant and Process Design
CM 431 Process Dynamics and Control
EE 211 Principles of Electrical Engineering
IE 204 Engineering Economics

3 credit hours of a fine arts, music or theater elective.
12 credit hours of technical electives.

Chemistry

Chemists are concerned with the structure and analysis of matter and the changes that matter undergoes. Today's chemists are solving chemical problems and developing new substances with the increasing use of laboratory instruments. Many of these instruments are interfaced with computers for rapid data analysis and display.

Careers for chemists in today's market include the rapidly developing fields of instrumentation, computers, energy, environment, forensics, medicine, safety and health, pharmaceuticals, product and equipment development, chemical engineering, plastics and polymers, synthetic fibers, industrial chemistry, technical sales and services and management.

The B.S. in chemistry program consists of all the courses recommended by the American Chemical Society and provides a rigorous background well-suited for those students who will pursue graduate studies in chemistry. The program is also highly recommended for pre-medical students.

The B.A. program in chemistry appears in this catalog under the School of Arts and Sciences.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Chemistry Club

The department has a chemistry club that is a student affiliate of the American Chemical Society. The club is open to all students, and all chemistry majors are encouraged to join. Club activities include projects, field trips, films, group discussions and social activities.

B.S., Chemistry

Required Courses

Students majoring in chemistry must complete from 121 to 125 credit hours, including the university core curriculum and the courses listed below:

Freshman

CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
E 105 Composition
E 110 Composition and Literature
M 117 Calculus I
M 118 Calculus II
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Sophomore

CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
M 203 Calculus III

2 concentration electives.

ES 107 Introduction to Engineering may be substituted for one of the concentration electives.

3 credit hours of an advanced mathematics elective.

Junior

CH 331 Physical Chemistry I with Laboratory
CH 332 Physical Chemistry II with Laboratory
CH 351 Qualitative Organic Analysis with Laboratory
IE 102 Introduction to Computers: FORTRAN
IE 224 Advanced FORTRAN Programming

6 credit hours of humanities electives.
2 concentration electives.
3 credit hours of an advanced chemistry elective.

Senior

CH 411 Seminar I
CH 412 Seminar II
CH 451 Thesis I
CH 501 Advanced Organic Chemistry I
CH 521 Advanced Inorganic Chemistry I with Laboratory
CH 599 Independent Study

6 credit hours of social science electives.
4 concentration electives.

B.A., Chemistry

The B.A. in chemistry program appears on page 72 in the School of Arts and Sciences section of this catalog.

A.S., Chemistry

Students who wish to earn an associate degree in chemistry must take a total of 64-66 credit hours including the courses listed below:

Required Courses

Freshman

E 105 Composition
E 110 Composition and Literature
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
ES 107 Introduction to Engineering
M 115 Pre-Calculus Mathematics
M 117 Calculus I
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Sophomore

CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
IE 102 Introduction to Computers: FORTRAN
M 118 Calculus II

3 credit hours of a humanities elective.
6-8 credit hours of restricted electives.

Minor in Chemistry

Students minoring in chemistry must complete 23-24 credit hours including the courses listed below:

Required Courses

CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory or elective*

*Elective should be chosen from CH 300 series or above.

Department of Civil and Environmental Engineering

Chairman: George R. Carson, M.S.C.E.

Professors: Ross M. Lanius, Jr., M.S.C.E., University of Connecticut, John C. Martin, M.E., Yale University; M. Hamdy Bechir, Sc.D., Massachusetts Institute of Technology

Associate Professor: George R. Carson, M.S.C.E., Columbia University

Civil engineering deals with planning, designing and constructing facilities serving humanity. These services are diversified and include the reduction of air and water pollution; transportation of people, materials and power; renewal of older sections of cities; development of new communities and development of water supply and power lines, railroads and tunnels; all with the least disturbance to the environment.

A civil engineer must have a solid background in mathematics, basic science, communication skills, engineering science, engineering design and humanities. The curriculum is designed to meet these basic criteria and is accredited by the Accreditation Board for Engineering and Technology (A.B.E.T.).

The first two years are essentially common to all engineering disciplines and include mathematics, basic sciences and communication skills. Students are expected to complete the requirements for the freshman year before entering junior year courses.

The junior year is common to all civil engineering students and provides a basic background in engineering science. In the senior year, concentrated engineering design courses are available in the environmental, structural, surveying and transportation fields. Through the senior project and independent study, an in-depth study of a specialized field is available. Humanities courses are included at all levels.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Student Chapter of the American Society of Civil Engineers

There is an active student chapter of the American Society of Civil Engineers at the university. The chapter sponsors technical lectures, field trips and social activities.

B.S., Civil Engineering

Students must complete a total of 131-135 credit hours for a degree in civil engineering including the engineering requirements for the freshman year listed earlier in this section and the university core requirements. They are also expected to earn a cumulative quality point ratio of no less than 2.0 in all civil engineering courses and technical electives. The required courses for the final three years of the program are listed below:

Required Courses

Sophomore

CE 201 Statics
CE 202 Strength of Materials
IE 102 Introduction to Computers: FORTRAN
IE 204 Engineering Economics
M 118 Calculus II
M 203 Calculus III
ME 204 Dynamics
PH 205 Electromagnetism and Optics with Laboratory

Junior

CE 203 Elementary Surveying
CE 301 Transportation Engineering
CE 302 Building Construction
CE 304 Soil Mechanics
CE 306 Hydraulics
CE 312 Structural Analysis
CE 315 Environmental Engineering and Sanitation
CE 317 Structural Design Fundamentals
CE 323 Civil Engineering Laboratory I
CE 325 Project Planning and Schedule
M 204 Differential Equations

3 credit hours of a technical elective.*

Senior

CE 324 Civil Engineering Laboratory II
CE 407 Contracts and Specifications
CE 501 Senior Project
EE 211 Principles of Electrical Engineering I
ME 301 Thermodynamics I

3 credit hours of a science elective.
6 credit hours of humanities or social science electives.
9 credit hours of technical electives.*

*One technical elective must be an advanced mathematics course or IE 346 Statistical Analysis and two must be civil engineering design courses.

A.S., Civil Engineering

Students who wish to earn an associate degree in civil engineering must complete a total of 64-67 credit hours including the courses listed below:

Freshman

E 105 Composition
E 110 Composition and Literature
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
ES 107 Introduction to Engineering
ME 101 Engineering Graphics
M 115 Pre-calculus Mathematics
M 117 Calculus I
IE 102 Introduction to Computers: FORTRAN
PH 150 Mechanics, Heat and Waves with Laboratory

Sophomore

M 118 Calculus II
PH 205 Electromagnetism and Optics with Laboratory
CE 201 Statics
CE 202 Strength of Materials
CE 203 Elementary Surveying
CE 301 Transportation Engineering
CE 315 Environmental Engineering and Sanitation

plus any two of the following courses:

M 203 Calculus III
CE 302 Building Construction
CE 325 Project Planning and Scheduling
IE 204 Engineering Economics

Minor in Civil Engineering

Students are required to complete 18 credit hours of civil engineering courses for the minor. With the approval of the chairman, engineering majors may substitute other civil engineering courses for a minor. Listed below are the required courses for the non-engineering major:

Required Courses

CE 203 Elementary Surveying
CE 301 Transportation Engineering
CE 302 Building Construction
CE 315 Environmental Engineering and Sanitation
CE 403 City Planning
CE 407 Contracts and Specifications

Department of Electrical and Computer Engineering

Chairman: Gerald J. Kirwin, Ph.D.

Professors: Gerald J. Kirwin,, Ph.D., Syracuse University; Kantilal K. Surti, Ph.D., University of Connecticut

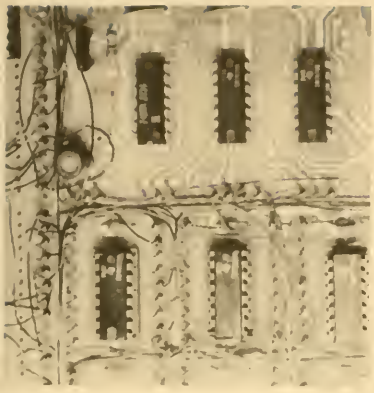
Associate Professors: Daniel C. O'Keefe, Ph.D., Worcester Polytechnic Institute; Peter Spoerri, Ph.D., Brooklyn Polytechnic Institute

Assistant Professor: Bouzid Aliane, Ph.D., Polytechnic Institute of New York

Practitioner-in-Residence: Harish N. Mathur, M.S., University of Maryland

Electrical engineers are concerned with energy and signals. They apply fundamental principles to the design of systems and devices for the generation, transmission and control of energy. Their activities include the coding of information into electrical signals and the processing of these signals in various computer systems.

The domain of electrical engineering encompasses such familiar and practical devices as power systems, radio and television communications apparatus, computers and automatic control systems.



The techniques and design philosophies of electrical engineering have had extraordinary influence on the development and evolution of the digital computer. All electrical engineering students are required to enroll in several courses from the computer area and additional course work may be undertaken on an elective basis.

An electrical engineer may serve in many professional capacities all of which require a thorough understanding of the scientific principles that govern electrical phenomena. As designers, electrical engineers use existing devices and techniques to meet the challenges of industry for more efficient, precise or reliable operations. These activities often lead to new concepts and techniques and sometimes to the discovery of new phenomena. The technical complexity of the services or products provided by many companies requires personnel with appropriate educational backgrounds. As a result, electrical engineers also find employment opportunities in sales, customer service and maintenance.

An undergraduate program in electrical engineering must prepare the student for a career in a field where new developments occur rapidly. Therefore, the School of Engineering believes it is imperative that the program of studies be heavily concentrated in the basic principles of the discipline.

At the University of New Haven, electrical engineering students divide their efforts between the tasks of learning engineering analysis methods and the techniques of electrical system design. Examples of modern applications associated with practical analysis and design problems are presented in lecture and laboratory courses. Because the origins of engineering methods are based in the sciences of chemistry, mathematics and physics, these subjects are an important part of the program of studies.

Electrical engineering students have direct access to the department laboratories, which include two DEC PDP11 systems and various microcomputers.

Electrical engineering students should possess good analytical abilities including sound mathematical competence. They should also have a natural curiosity about the multitude of technical devices encountered in everyday life, a willingness to learn the principles that make these devices possible and a desire to create new devices and methods of solving problems.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Student Chapter of I.E.E.E.

The department of electrical engineering has an active student section of the Institute of Electrical and Electronics Engineers. This organization sponsors visiting lecturers and field trips to surrounding industrial sites. Eta Kappa Nu, the national honorary society for electrical engineers, has the Zeta Rho Chapter at the university to honor superior students and to encourage high scholastic achievements.

B.S., Electrical Engineering

Students must complete a total of 127-131 credit hours for a degree in electrical engineering including the requirements for the freshman year listed earlier in this section and the university core curriculum. Humanities or social science electives must be selected from art,

economics, English, history, philosophy, political science, psychology, sociology or world music. These electives may not include technical subjects and must serve to broaden the student's cultural background.

Technical electives must be approved by the department chairman or the faculty advisor. At least three of these electives must be electrical engineering courses. The required courses for the final three years of the program are listed below:

Required Courses

Sophomore

EE 201 Basic Circuits I
EE 202 Basic Circuits II
EE 253 Electrical Engineering Laboratory
EE 271 Computer Science
M 118 Calculus II
M 203 Calculus III
ME 204 Dynamics
ME 301 Thermodynamics I
PH 205 Electromagnetism and Optics with Laboratory

3 credit hours of a humanities elective.

Junior

EE 301 Network Analysis
EE 302 Systems Analysis
EE 347 Electronics I
EE 348 Electronics II
EE 349 Electrical Engineering Laboratory II
EE 355 Digital Systems I
EE 361 Electromagnetic Theory
EE 362 Electromagnetic Waves
M 204 Differential Equations

3 credit hours of a mathematics elective.
3 credit hours of a technical elective

Senior

EC 133 Principles of Economics I
EE 420 Random Signal Analysis
EE 453 Electrical Engineering Laboratory III
EE 465 Physical Electronics *or* EE 463 Electromechanical Energy Conversion (offered alternate years)
IE 204 Engineering Economics

9 credit hours of technical electives.*
6 credit hours of humanities electives.
3 credit hours of a free elective.

*To ensure that students meet the requirements of the Accreditation Board for Engineering and Technology (A.B.E.T.), technical electives must be chosen in consultation with the student's advisor.

A.S., Electrical Engineering

Upon successful completion of 63-64 credits of designated courses, including all of the courses in the freshman year, a student may be granted the associate's degree in electrical engineering. All of these courses are also a part of the B.S. in electrical engineering requirements and most students continue their enrollment after receiving their A.S.

Minor in Electrical Engineering

A student may obtain a minor in electrical engineering by completing the following courses:

EE 201 Basic Circuits I
EE 202 Basic Circuits II
EE 253 Electrical Engineering Lab I
EE 347 Electronics I
EE 355 Digital Systems I
EE 361 Electromagnetic Fields

The student will also fulfill the prerequisites for these courses. Students contemplating either a minor or an associate's degree should consult with the department chairman early in their program.

Department of Industrial Engineering and Computer Science

Chairman: Ira H. Kleinfeld, Eng.Sc.D.

Professors: Edward T. George, D.Eng., Yale University; William S. Gere, Ph.D., Carnegie-Mellon University; Roger G. Frey, Ph.D., Yale University; Ira H. Kleinfeld, Eng.Sc.D., Columbia University; Richard A. Mann, Ph.D., University of Wisconsin; Alexis N. Sommers, Ph.D., Purdue University.

Associate Professors: Joseph J. Arnold, M.S., Southern Connecticut State College; Francis J. Costello, M.S.M.E., Newark College of Engineering; Norman Hosay, Ph.D., University of Wisconsin; Ronald Wentworth, Ph.D., Purdue University

Instructors: William Adams, B.S., University of New Haven; Alice Fischer, M.A., Harvard University; Priscilla H. Griscom, M.A., University of Rhode Island.

The department of industrial engineering and computer science offers three distinct baccalaureate degree programs: a B.S. in industrial engineering; a B.S. in computer science–industrial applications; and a B.S. in computer science–software systems. The objectives and career opportunities associated with each are described below.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Student Chapter of A.I.I.E.

Students are eligible to join, at a reduced rate, the student chapter of the American Institute of Industrial Engineers which is affiliated with a local senior chapter, enabling them to develop a sense of the practice of the profession.

B.S., Industrial Engineering

Industrial engineers determine the most effective methods of using the basic factors of production--manpower, machinery and materials. Expertise provided by industrial engineers will be increasingly important as our industries struggle to improve productivity and competitiveness in manufacturing, service and trade. Industrial engineers are needed in manufacturing, in service industries such as hospitals and utilities, in trade and commerce such as banks and insurance companies, and in consulting firms. In addition, industrial engineers are among the most upwardly mobile of those in the engineering profession, by virtue of their training and experience. Many industrial engineers have attained top management positions in a variety of industries.

The department's program in industrial engineering gives students a broad engineering background during the first two years. In the last two years the required courses in industrial engineering are taken in addition to electives which enable the student to tailor his or her studies to his own interests such as operations reserach, systems analysis, or computer science. This program is the only one of its kind offered in Connecticut and it is accredited by the Accreditation Board for Engineering and Technology (A.B.E.T.).

Students have the opportunity to use the industrial engineering laboratory and the university's computer center.

Required Courses

Students earning the B.S. in industrial engineering must complete 130-133 credit hours including the university core curriculum. These courses must include the freshman requirements listed earlier in this section, 33 credit hours in industrial engineering courses and 12 credit hours of technical electives chosen in consultation with the student's advisor. Technical electives are generally junior- or senior-level courses in engineering, mathematics or physics.

Sophomore

CE 201 Statics
CE 202 Strength of Materials
IE 204 Engineering Economics
M 118 Calculus II
M 203 Calculus III
ME 101 Engineering Graphics
ME 204 Dynamics
PH 205 Electromagnetism and Optics with Laboratory

1 English literature elective.
1 physics elective.

Junior

EC 133 Principles of Economics I
EC 350 Economics of Labor Relations
IE 214 Engineering Management
IE 224 Advanced Programming/FORTRAN
IE 234 Production Control
IE 243 Work Analysis
IE 346 Probability Analysis
IE 347 Statistical Analysis
M 204 Differential Equations *or* M 231 Linear Algebra

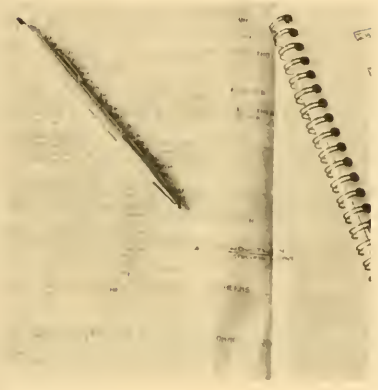
1 free elective.
1 technical elective.

Senior

EE 211 Principles of Electrical Engineering
IE 233 Cost Control
IE 443 Facilities Planning
IE 402 Operations Research

1 additional electrical engineering course.
4 technical electives.
1 social science elective from political science, psychology or sociology.
1 elective from fine arts, music or theatre.

B.S., Computer Science/Software Systems



This program follows the Association for Computing Machinery guidelines for an undergraduate computer science degree. It is intended to prepare students either for graduate school in computer science or for a job as a systems or applications programmer. Eventually graduates can expect to hold positions such as software engineer, system designer, free lance software consultant and programming manager.

The computer science/software systems program includes instruction in several programming languages, a strong base in mathematics, and intermediate courses in methods and systems. Advanced courses in various areas may be elected. The student will choose some area of high interest outside of the computer science department and pursue a specialization in that field. These courses must be approved by his or her advisor and are designated as specialization electives.

Required Courses

A total of 126 credit hours including the university core curriculum is required for the bachelor of science in computer science/software systems. Because this is not a typical engineering program, the freshman year curriculum is different from the other engineering disciplines, and is included below.

Freshman

E 105 Composition
E 110 Composition and Literature
M 115 Pre-Calculus
M 117 Calculus I
IE 106 Introduction to Programming/Pascal
IE 226 Advanced Programming and Data Structures/Pascal
PH 150 Mechanics, Heat and Waves with Laboratory
HS 101 Western Civilization to 1700

2 social science electives.

Sophomore

M 118 Calculus II
M 203 Calculus III
M 270 Discrete Structures
IE 334 Machine Organization and Assembly Language
IE 237 Data Structures and Algorithms
IE 228 Intensive FORTRAN
IE 229 Intensive COBOL
PH 250 Electromagnetism and Optics with Laboratory

1 literature or philosophy elective.
2 specialization electives.

Junior

M 231 Linear Algebra
IE 346 Probability Analysis
EI 347 Statistical Analysis
EI 320 Operating Systems
EI 337 Data Base Systems
EI 339 Structure of Programming Languages and Compilers
EE 355 Digital Systems I
EE 356 Digital Systems II

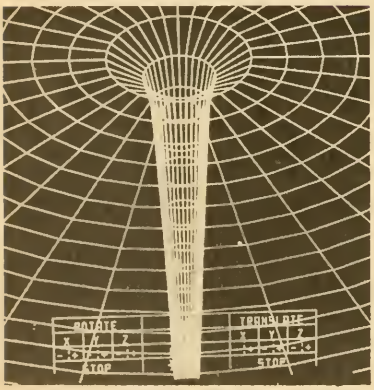
1 computer science elective.
1 technical elective.

Senior

IE 420 Software Design and Development

1 fine arts elective.
4 computer science electives.
2 specialization electives.
2 technical electives.

B.S., Computer Science/Industrial Applications



The program in CS/IA is designed for the student who wants to work with computers as a profession, initially as an applications programmer in business or industry, ultimately as a manager, systems analyst or director of a computing center. Programming in several languages, a strong base in mathematics and general business techniques and practices are emphasized.

Required Courses

A total of 125 credit hours including the university core curriculum is required for the CS/IA. The freshman year curriculum is compatible with that for the CS/SS degree above.

Freshman

E 105 Composition
E 110 Composition and Literature
EC 133 Principles of Economics I
EC 134 Principles of Economics II *or* EC 350 Economics of Labor Relations
HS 101 Western Civilization to 1700
IE 106 Introduction to Programming/Pascal
IE 226 Advanced Programming and Data Structures/Pascal
M 115 Pre-Calculus
M 117 Calculus I
PH 150 Mechanics, Heat and Waves with Laboratory

Sophomore

IE 214 Engineering Management
M 118 Calculus II
PH 205 Electromagnetism and Optics with Laboratory
ME 101 Engineering Graphics
IE 334 Machine Organization and Assembly Languages
IE 237 Data Structures and Algorithms
IE 228 Intensive FORTRAN
IE 229 Intensive COBOL
IE 234 Production Control

1 computer science elective.
1 literature or philosophy elective.

Junior

IE 346 Probability Analysis
IE 347 Statistical Analysis
IE 204 Engineering Economics
IE 233 Cost Control
EE 355 Digital Systems I
IE 320 Operating Systems
IE 337 Data Base Systems

1 electrical engineering elective.
1 social science elective.
1 technical elective.

Senior

E 220 Writing for Business and Industry
IE 408 Systems Analysis
IE 420 Software Design and Development (pending approval)

2 computer science electives.
3 technical electives.
1 fine arts elective.
1 free elective.

A.S., Industrial Engineering

This two-year associate degree program is designed for the student who wishes an earlier entrance to the job market. All credits can be applied toward the B.S. in industrial engineering at a later date.

A.S., Computer Science

This two-year associate's program is designed for the student who wishes an earlier entrance into the job market. All credits can be applied toward the CS/IA degree at a later date.

Minor in Industrial Engineering

Engineering students may minor in industrial engineering by completing 18 credit hours of industrial engineering courses. The required courses for the minor are listed below.

Required Courses

IE 204 Engineering Economics
IE 233 Cost Control
IE 234 Production Control
IE 243 Work Analysis
IE 443 Facilities Planning
IE 402 Operations Research

Department of Mechanical Engineering

Chairman: John Sarris, Ph.D.

Professors: Konstantine C. Lambrakis, Ph.D., Rensselaer Polytechnic Institute; B. Badri Saleeby, Ph.D., Northwestern University; Thomas C. Warner, Jr., M.S., Massachusetts Institute of Technology

Associate Professors: Stephen M. Ross, Ph.D., The Johns Hopkins University; John Sarris, Ph.D., Tufts University; Richard M. Stanley, Ph.D., Yale University

Assistant Professor: Mark Reuber, Ph.D., University of Illinois

The department of mechanical engineering has a long history of success in producing outstanding graduates in the field of thermal sciences, fluids and design. To ensure that graduates will continue to distinguish themselves in either graduate school or the practice of engineering, the department places emphasis on the scientific foundation of the curriculum and on the breadth and scope of the professional courses. Implicit in this emphasis is a demand for a high level of maturity and flexibility on the part of the student.

The rapid advances in science and technology require that mechanical engineers, as generalists among engineers, not only have a thorough understanding of basic scientific principles, but also have an appreciation of human values and an awareness of the effects of their contribution to the social, professional, economic and ecological climate in which they work.

Several options for concentration at the senior year are available for a student to pursue. At that level, restricted elective courses may be selected, with the help of the student's faculty advisor, which offer the opportunity for further learning in areas such as fluids, energy, design, heat transfer, numerical analysis and computers, aerospace sciences and control systems.

Exceptional students having an overall average of 3.50 or better may join the Delta Zeta Chapter of Pi Tau Sigma honorary fraternity which provides the opportunity for closer relations with the faculty and other prominent individuals in the field for the purpose of further professional development, involvement in faculty research and varied social and intellectual activities.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Student Chapter of A.S.M.E.

Membership in the American Society of Mechanical Engineers student section is open to all mechanical engineering students of good standing and provides the opportunity for field trips to local industrial establishments, social activities and reading of interesting professional literature.

B.S., Mechanical Engineering

Required Courses

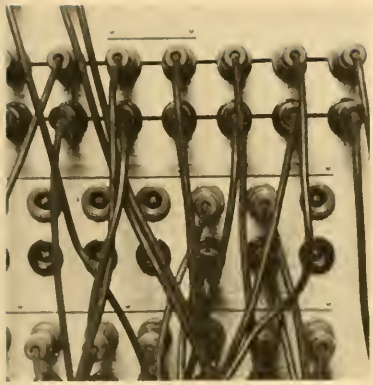
Students earning the bachelor of science in mechanical engineering are required to complete 130-134 credit hours including the university core curriculum. Requirements include the freshman year courses listed earlier in this section and those listed below:

Sophomore

CE 201	Statics
CE 202	Strength of Materials
M 118	Calculus II
M 203	Calculus III

ME 101 Engineering Graphics
ME 215 Instrumentation Laboratory
MT 200 Engineering Materials
PH 205 Electromagnetism and Optics with Laboratory

3 credit hours of a humanities elective.
3 credit hours of a science elective (200 or higher level course in physics, chemistry, biology or environmental studies).



Junior
EE 201 Circuit Analysis I
EE 202 Circuit Analysis II
M 204 Differential Equations
ME 301 Thermodynamics I
ME 302 Thermodynamics II
ME 307 Strength of Materials II
ME 311 Machine Elements
ME 312 Mechanical Design
ME 315 Mechanics Laboratory
ME 344 Mechanics of Vibration

3 credit hours of a mathematics elective (300 or higher level).

Senior
EC 133 Principles of Economics I
IE 204 Engineering Economics
ME 421 Fluid Mechanics
ME 422 Gas Dynamics
ME 404 Heat and Mass Transfer
ME 415 Thermo/Fluids Laboratory

9 credit hours of technical electives.*
6 credit hours of humanities electives.

*To ensure that students meet the math requirements of the Accreditation Board for Engineering and Technology (A.B.E.T.), technical electives must be chosen in consultation with the student's advisor.

B.S., Materials Technology

The performance of virtually every electrical, mechanical and structural device is limited ultimately by the materials from which it is made. The materials engineer is the expert on materials selection who must weigh the relative merits of metals against plastics and specify material for everything from ceramic magnets to aerospace composite fiber materials. The materials engineer is also the controller of materials processing during manufacture. This might include such diverse specialties as powder metallurgy, plastic extrusion, metal heat treatment and vapor deposition, to name but a few fabrication techniques.

The bachelor of science degree program in materials technology provides a broad core curriculum to develop an understanding of the fundamental principles common to all materials. It also incorporates elective courses to enable the student to specialize in a particular materials technology field.

Required Courses

Students earning the bachelor of science in materials technology are required to complete 120-124 credit hours, including the university core curriculum and those courses listed below:

CE 201 Statics
CE 202 Strength of Materials
CH 115 General Chemistry I

CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
E 105 Composition
E 110 Composition and Literature
EC 133 Principles of Economics I
EE 201 Circuit Analysis I
ES 107 Introduction to Engineering
M 115 Pre-Calculus Mathematics
M 117 Calculus I
M 118 Calculus II
ME 204 Dynamics
ME 301 Thermodynamics I
MT 219 Physical Metallurgy
MT 304 Mechanical Behavior of Materials
MT 310 Materials Laboratory
MT 342 Steels and their Heat Treatment
MT 500 Research Project
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Choice of IE 102 Introduction to Computers: FORTRAN
or ME 101 Engineering Graphics.
6 credit hours of humanities electives.
12 credit hours of materials electives.
21 credit hours of technical electives.
12 credit hours of free electives.

A.S., Mechanical Engineering

The associate degree in mechanical engineering is not designed to be a terminal degree. It simply provides formal evidence that the student has completed about one-half of the bachelor's program. Students wishing to earn an associate degree in mechanical engineering must complete 64-65 credit hours, corresponding to the courses listed below:

Freshman

E 105 Composition
E 110 Composition and Literature
ES 107 Introduction to Engineering
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
IE 102 Introduction to Computers: FORTRAN
M 115 Pre-Calculus Mathematics
M 117 Calculus I
ME 101 Engineering Graphics
PH 150 Mechanics, Heat and Waves with Laboratory

Sophomore

CE 201 Statics
CE 202 Strength of Materials I
M 118 Calculus II
ME 204 Dynamics
ME 301 Thermodynamics I
MT 200 Engineering Materials
PH 205 Electromagnetism and Optics with Laboratory

Plus any two of the following courses:

IE 204 Engineering Economics
M 203 Calculus III
ME 302 Thermodynamics II
ME 307 Strength of Materials II
ME 311 Machine Elements

A.S., Materials Technology

The associate degree in materials technology in not designed to be a terminal degree. It simply provides formal evidence that the student has completed about one-half of the bachelor's program. Students wishing to earn an associate degree in materials technology must complete 64 credit hours, corresponding to the following courses:

E 105 Composition
E 110 Composition and Literature
ES 107 Introduction to Engineering
CE 201 Statics
CE 202 Strength of Materials I
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
IE 102 Introduction to Computers: FORTRAN
M 115 Pre-Calculus Mathematics
M 117 Calculus I
M 118 Calculus II
ME 204 Dynamics
ME 301 Thermodynamics I
MT 219 Physical Metallurgy
MT 310 Materials Laboratory
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratry

Plus any two of the following courses:

EE 211 Principles of Electrical Engineering
MT 304 Mechanical Behavior of Materials
MT 331 Nonferrous Metallurgy
MT 342 Steels and their Heat Treatment

Minor in Mechanical Engineering

Students wishing to minor in mechanical engineering must complete the following courses with a minimum QPR of 2.0.

ME 101 Engineering Graphics
ME 204 Dynamics
ME 301 Thermodynamics

Plus three courses among the 300- or 400-level M.E. courses. (Students with general interest in mechanical engineering are advised to select ME311, ME344 and ME421.)

Shipbuilding and Marine Technology

Director: B. Badri Saleeby, Ph.D.

The shipbuilding and marine technology program has been adapted from the university's traditional engineering program to meet the special needs and interests of employees of New England shipyards. The two-year associate in science degree is built on a heavy concentration of mathematics, science, general engineering and marine engineering.

Concentrations

Upon consulting with his or her advisor, the student chooses 12 credit hours of elective courses that satisfy a concentration requirement. The three available concentrations are: (a) engineering, (b) shipbuilding and (c) management.

Transfer Credit

Under university regulations, students may receive transfer credit for up to 30 credit hours of appropriate and satisfactory course work completed at any accredited college or university. While no mechanism exists to award UNH credit for apprentice training, students may take crediting exams administered by UNH departments in any areas where they feel qualified. In order to qualify for the associate's degree, 30 credit hours must be taken in residence.

A.S., Shipbuilding* and Marine Technology

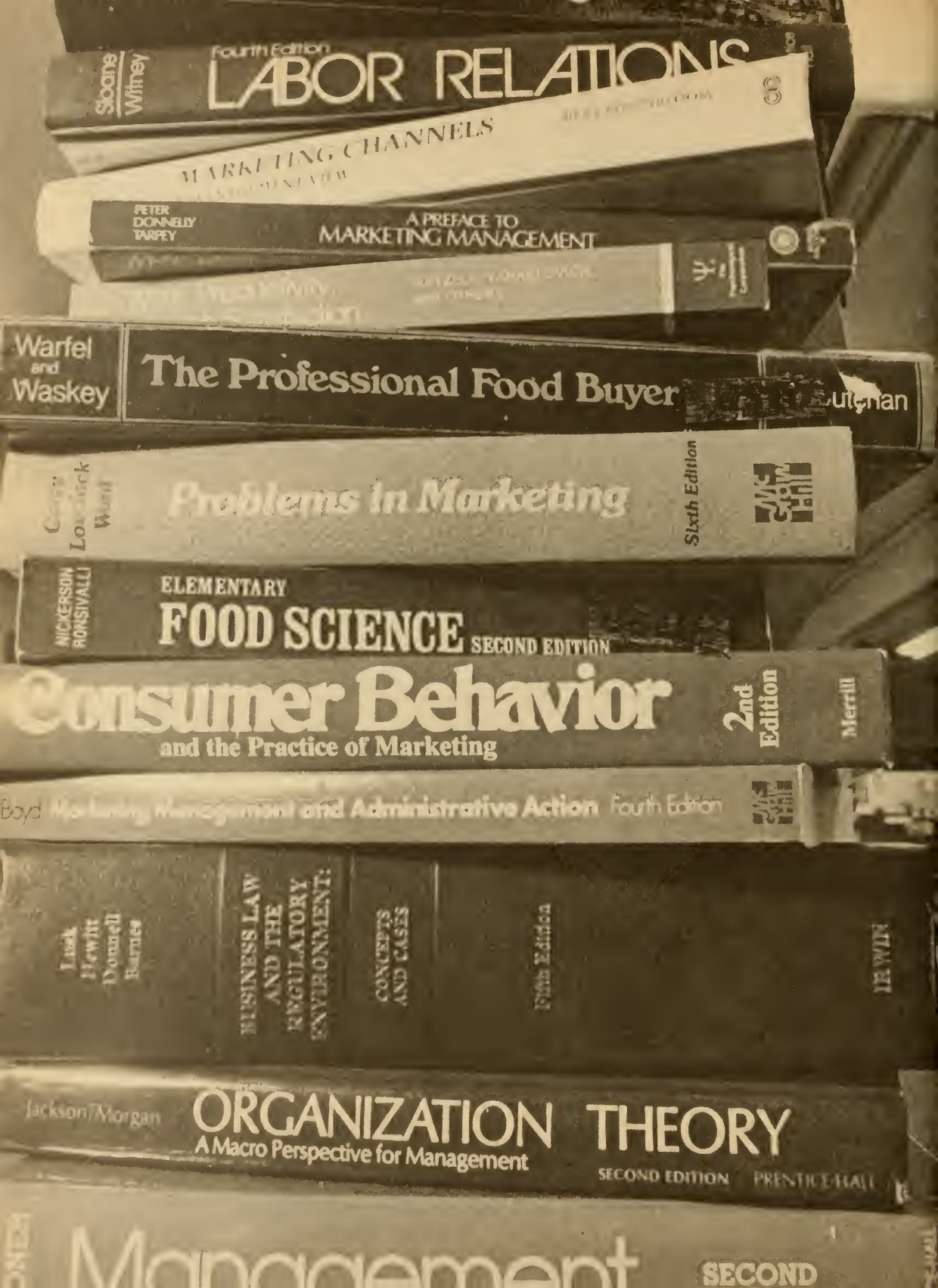
Students earning the associate in science degree in shipbuilding and marine technology must complete from 63 to 66 credit hours including those courses listed below:

Required Courses

SB 101 Introduction to Shipbuilding
SB 102 Ship Design
SB 201 Nuclear Ship Propulsion

1 additional shipbuilding course.
12 credit hours general engineering courses.
12 credit hours in management or technical electives.
9-12 credit hours in science.
9 credit hours in mathematics.
9 credit hours in English or social sciences.
12 credit hours in management or technical electives.

*This program is currently under review for licensure by the Connecticut Board of Higher Education (4/84).


Fourth Edition
Sloane
Wilney
LABOR RELATIONS
MARKETING CHANNELS
PETER
DONNELLY
TARPEY
A PREFACE TO
MARKETING MANAGEMENT
Warfel
and
Waskey
The Professional Food Buyer
Problems in Marketing
Sixth Edition
NICKERSON
RONSIVALLI
ELEMENTARY
FOOD SCIENCE
SECOND EDITION
Consumer Behavior
and the Practice of Marketing
2nd
Edition
Merrill
Boyd
and Administrative Action
Fourth Edition
BUSINESS LAW
AND THE
REGULATORY
ENVIRONMENT:
CONCEPTS
AND CASES
Fifth Edition
IRWIN
Jackson/Morgan
ORGANIZATION THEORY
A Macro Perspective for Management
SECOND EDITION
PRENTICE-HALL
Management
SECOND

SCHOOL OF HOTEL, RESTAURANT AND TOURISM ADMINISTRATION

Ronald A. Usiewicz, Ph.D., dean

James F. Downey, Ph.D., associate dean

Hotel, food service, dietetic and travel professionals have careers that are challenging and rewarding. Job opportunities range from managing small restaurants to directing large hotel and resort complexes, with employment possibilities in the U.S. and abroad, from small towns to major cities and from seashore to ski country.

An explosive rate of expansion is predicted, both nationally and internationally, for hospitality enterprises during the coming decade. Virtually all nations are looking for American talents and know-how in hotel/motel, food service and tourism operations. These conditions generate a great demand for hospitality management graduates with motivation, experience and education, who can move with the tide and start climbing the career ladders in the hospitality industry.

The School of Hotel, Restaurant and Tourism Administration serves the feeding, lodging, tourism, health care and recreational industries. Our graduates furnish the managerial talent needed by hotels, motor inns, resorts, health care institutions, private clubs, restaurants and travel facilities. Professional management is absolutely necessary to meet the increasing governmental, financial and operational complexities of the industry.

Programs

Bachelor of Science
Hotel and Restaurant Management
Tourism and Travel Administration
General Dietetics
Institutional Food Service Administration

Associate Degree
Hotel and Restaurant Management
Executive Housekeeping Administration
Tourism and Travel Administration
Dietetic Technology

Certificate Programs
Hotel and Restaurant Management
Executive Housekeeping Administration
Tourism and Travel Administration
Dietetic Technology
Institutional Food Service Administation

Master of Business Administration
Hotel and Restaurant Management concentration
Dietetics Administration concentration

Senior Professional Certificates
Hotel and Restaurant Management
Dietetics Administration

Supervised Field Experience

Because of the unique nature of the hospitality industry and the diverse exposure to hands-on experience that is highly recommended by industry leaders, the student will be required to complete a total of 500 hours of field experience for the associate degree, and 1,000 hours for the bachelor's degree. See the course descriptions for HR 215, HR 217, HR 219 and HR 221 for specific requirements and assignments.

The Co-op Program

The school participates in the Cooperative Education program, a unique educational strategy that results in a planned, integrated program of work and study.

Co-op affords the student the opportunity of seeing the practical application of classroom theory to the world of work, of sampling career possibilities, and of gaining valuable work experience before graduation. Currently, the school participates in cooperative education programs with major local and national hospitality organizations including Walt Disney World, Marriott, Friendly Restaurants, PEOPLExpress Airlines and Yellowstone National Park, among many others. For further details, the student may consult the Cooperative Education director or the faculty Co-op advisor in the school.

University Food Service

The School of Hotel, Restaurant and Tourism Administration operates and manages the university's on-campus food service facility located in the Student Center. This arrangement is unique, since no other four-year hotel and restaurant management program throughout the nation maintains a similar responsibility.

Faculty, students and full-time food service employees share the work effort required to manage and control the university's food service operation. This cooperative relationship allows for a credible and viable "real world" experience for the student.

Hotel/Restaurant Club

The purpose and functions of the Hotel/Restaurant Club are: to promote and develop professionalism in the hospitality industry; to provide special services to clientele in order to support club operations and professional functions; to attend national conferences, expositions, hotel/restaurant shows and seminars, and to provide a means of fellowship and camaraderie among students enrolled in hospitality programs. Students are urged to become members of the club and participate in the numerous social, academic and catering functions throughout the year.

Tourism Committee

Established as a means of actively promoting tourism, the Tourism Committee provides a forum for interested tourism and travel administration majors. Members attend tourism conventions, plan social functions, host educational seminars and explore career possibilities by meeting with prominent travel professionals from various areas within the industry. All tourism and travel administration majors are encouraged to join and actively support and participate in the activities of the Tourism Committee.

Club Managers' Association of America, Student Chapter

The purpose of the student chapter of the Club Managers' Association is to make students more aware of club management and its overall function in the hospitality industry. The chapter visits various clubs in the Connecticut area, and takes part in many of their meetings and workshops.

Placement

A student in the University of New Haven's School of Hotel, Restaurant and Tourism Administration receives help in finding interesting, satisfying work in his or her chosen field in many ways throughout his or her college years. The school and its faculty are known to hospitality executives throughout the nation. The student, through attendance and participation in seminars, lectures and industry conventions, has ample opportunity to meet interesting and important people in the field. The school also maintains, in cooperation with Career Development, an active placement service to help students obtain hospitality-related jobs during the academic year as well as to assist them in finding permanent positions.

Many firms send representatives to our campus in an effort to seek qualified candidates for possible employment. Corporations such as Hyatt, Marriott, Friendly's, Walt Disney World, Holiday Inns and other similar firms have visited our school and will continue to do so in the future. While the university does not guarantee employment, the programs provided by the school, the quality of its faculty and the admirable performance of our past graduates in the industry have combined with the efforts of the university's placement office to produce a past record of an enviable 95 to 100 percent graduate placement.

Admission Criteria

An applicant for admission to a program in this school must be a graduate of an approved secondary school or the equivalent. While no set program of high school subjects is prescribed, an applicant must meet the standard of the university with respect to the high school average. Applicants must present 15 acceptable units of satisfactory work, including nine or more units of college preparatory subjects. Satisfactory scores on College Entrance Examination Board Scholastic Aptitude Tests (S.A.T.) or American College Testing (A.C.T.) program tests are required.

The Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the new university core curriculum. See page 57 information.

Transfer Credit

The School of Hotel, Restaurant and Tourism Administration is interested in the further educational and professional development of students with transcripts from junior, senior and community colleges, plus professional schools such as the Culinary Institute of America. A transfer credit policy for students transferring from a properly accredited school has been developed and will be furnished upon request. Special provisions have also been developed for applicants holding the baccalaureate degree in some other discipline.

Department of Hotel and Restaurant Management

Chairman: Assistant Professor Margaret M. Turcotte, M.B.A., University of New Haven

The food service industry has expanded rapidly in the past half century, especially in the last two decades, and ranks first in volume of sales among all retail outlets in the United States; a conservative estimate is that one out of every three meals is planned, prepared and served outside the family home. The food service industry is broad in scope and varies from systems such as highly competitive and expensive restaurants and hotels to a multiplicity of fast and less costly food outlets such as schools, universities and hospitals with conservative budgets.

Hotel management offers outstanding personal and financial rewards. The diversified knowledge required in the management and operation of the modern hotel or motel demands a broad and varied professional background. The program in hotel management is designed to assist the student in his or her preparation for a rewarding career in this demanding profession.

B.S., Hotel and Restaurant Management

A student earning a bachelor of science degree in hotel and restaurant management is able to focus on the development of those managerial skills, abilities, and competencies essential to all professional managers, with specific concentration on those characteristics needed for managing hotels, restaurants and related operations.

The department suggests that students enrolled in the program choose a minor in psychology, nutrition, or a foreign language.

Required Courses

Students earning a B.S. in hotel and restaurant management must complete 121 credit hours, including the university core curriculum and those courses listed below:

HR 100 Introduction to the Hospitality Industry
HR 200 Volume Production and Service I
HR 202 Volume Food Purchasing
HR 204 Volume Food Production and Service II
HR 210 Hotel Front Office Systems
HR 212 Laws of Innkeeping
HR 215 Supervised Field Experience I
HR 217 Supervised Field Experience II
HR 219 Supervised Field Experience III
HR 221 Supervised Field Experience IV
HR 300 Special Topics electives
HR 304 Cultural Understanding of Foods and Cuisines
HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 322 Marketing and Sales Promotion for the Hospitality Industry
HR 325 Food and Labor Cost Controls
HR 326 Personnel Management in the Hospitality Industry
HR 330 Institutional Environmental Services and Housekeeping
HR 410 Systems and Operations

HR 411 Food Service Equipment and Layout Design
HR 512 Seminar in Hospitality
TT 165 Principles of Tourism and Travel
TT 166 Touristic Geography
DI 214 Food Service Management Systems I
DI 216 Food Service Management Systems II
DI 218 Food Service Management Systems III
A 101 Introduction to Financial Accounting
EC 133 Principles of Economics I
CO 100 Human Communication
CO 410 Management Communication Seminar
MG 150 Business Data Processing
SO 250 Research Methods
P 111 Introduction to Psychology

1 political science elective.

A.S., Hotel and Restaurant Management

A student may obtain an associate degree in hotel and restaurant management, then continue at the University of New Haven and receive the B.S. in hotel and restaurant management.

Required Courses

Students earning the A.S. in hotel and restaurant management must complete 60 credit hours including the courses listed below:

HR 100 Introduction to the Hospitality Industry
HR 200 Volume Food Production and Service I
HR 202 Volume Food Purchasing
HR 204 Volume Food Production and Service II
HR 210 Hotel Front Office Systems
HR 212 Laws of Innkeeping
HR 215 Supervised Field Experience I
HR 217 Supervised Field Experience II
HR 304 Cultural Understanding of Foods and Cuisines
HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 322 Marketing and Sales Promotion for the Hospitality Industry
HR 325 Food and Labor Costs Controls
HR 326 Personnel Management in the Hospitality Industry
TT 165 Principles of Tourism and Travel
A 101 Introduction to Financial Accounting
MG 150 Business Data Processing
E 105 Composition
HS 101 Foundations of the Western World
M 127 Finite Mathematics
P 111 Introduction to Psychology

A.S., Executive Housekeeping Administration

Students completing the associate degree will be eligible for membership in the National Executive Housekeepers Association.

Required Courses

The executive housekeeping administration major must complete the following 60 credit hours for the associate in science degree:

HR 100 Introduction to the Hospitality Industry
HR 210 Hotel Front Office Systems
HR 212 Laws of Innkeeping
HR 215 Supervised Field Experience I
HR 217 Supervised Field Experience II

HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 322 Marketing and Sales Promotion for the Hospitality Industry
HR 325 Food and Labor Cost Controls
HR 326 Personnel Management in the Hospitality Industry
HR 330 Institutional Environmental Services and Housekeeping
HR 410 Systems and Operations
HR 411 Food Service Equipment and Layout Design
TT 165 Principles of Tourism and Travel
A 101 Introduction to Financial Accounting
CO 410 Management Communication Seminar
P 111 Introduction to Psychology

Certificate Programs

The department offers certificates in hotel and restaurant management and executive housekeeping administration. Students must complete 18 credit hours of required courses to earn a certificate. Students may choose to take these courses on a credit or non-credit basis. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Hotel and Restaurant Management Certificate

This program is designed for those professionals currently employed in hotels, motels, resorts, clubs and areas of food service, excluding institutional, who wish to increase their knowledge and skills leading to a supervisory position in this growing field. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

HR 304 Cultural Understanding of Foods and Cuisines
HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 325 Food and Labor Cost Controls
HR 326 Personnel Management in the Hospitality Industry
HR 330 Institutional Environmental Services and Housekeeping
HR 410 Systems and Operations

Executive Housekeeping Administration Certificate

For individuals who wish to increase their current skills in housekeeping administration and/or assume middle supervisory positions. Career options include positions with housekeeping departments of hotels, motels, resorts, clubs and lodging facilities. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

HR 210 Hotel Front Office Systems
HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 325 Food and Labor Costs
HR 326 Personnel Management in the Hospitality Industry
HR 330 Institutional Environmental Services and Housekeeping
HR 410 Systems and Operations

Minor Programs

A total of 18 semester hours of course work must be earned in order for a student to declare the fields of hotel and restaurant management or executive housekeeping administration as a minor area of study. The course work, 18 credits, is identical to the requirements of the various certificate programs.

Department of Tourism and Travel Administration

Acting Chairman: Assistant Professor Margaret M. Turcotte, M.B.A., University of New Haven

Tourism and travel activities are major national resources for many nations. Travel patterns often affect the construction of facilities, and most countries and states have major programs to expand tourism within their boundaries. Tourism contributes to so many different economic areas that expenditures related to world tourism and travel are expected to approach $200 billion before the end of the century. These figures emphasize the need for expert professional counselors and consultants in tourism and travel.

Tourism and travel professionals impact on commercial activities ranging from transportation, accommodations and food, to touring, sightseeing, shopping, and cultural events. The tourism and travel major studies the history, routes, equipment, services and developments in the areas of tourism and travel, as well as the cultural, economic, and political implications of tourism-related activities. The major in tourism and travel includes courses which partially meet certification requirements for the C.T.C. designation (Certified Travel Counselor) from the Institute of Certified Travel Agents. Students are also eligible to sit for the American Society of Travel Agents' proficiency examinations upon completion of the course work in the major.

B.S., Tourism and Travel Administration

A student earning a bachelor of science degree in tourism and travel administration studies international business, economics, international relations and the social and cultural patterns that have shaped the development of the tourism and travel industry. Students receive field experience opportunities at travel agencies, airlines and convention bureaus throughout New England.

Students enrolled in the tourism and travel administration major are encouraged to choose a minor in a foreign language, psychology, sociology or international business.

Required Courses

A minimum total of 121 credit hours including the university core curriculum must be completed for the bachelor of science degree in tourism and travel administration. The program includes the following courses:

TT 165	Principles of Tourism and Travel
TT 166	Touristic Geography
TT 267	Shipping and Cruises
TT 268	Land Transportation
TT 300	Psychology of Leisure Travel
TT 300	Travel Marketing Techniques
TT 300	Tourism Planning and Development
TT 300	Travel Agency Automation
TT 300	The Law and the Travel Industry
TT 370	Airline Transportation and Reservations Procedures
TT 375	Travel Agency Management
TT 480	Wholesale Tour Systems
HR 100	Introduction to the Hospitality Industry

HR 215 Supervised Field Experience I
HR 217 Supervised Field Experience II
HR 219 Supervised Field Experience III
HR 221 Supervised Field Experience IV
HR 304 Cultural Understanding of Foods and Cuisines
HR 326 Personnel Management in the Hospitality Industry
HR 512 Seminar in Hospitality
A 101 Introduction to Financial Accounting
EC 133 Principles of Economics I
CO 100 Human Communication
CO 410 Management Communication Seminar
IB 312 International Business
MG 150 Business Data Processing
P 111 Introduction to Psychology
SO 250 Research Methods

2 TT 300 Special Topics electives.
2 foreign languages or electives.
1 sociology or political science elective.

A.S., Tourism and Travel Administration

A student may obtain an associate degree in tourism and travel administration, then continue at the University of New Haven and earn a bachelor of science degree in the field.

Required Courses

The tourism and travel administration major must complete 60 credit hours, including the courses listed below:

TT 165 Principles of Tourism and Travel
TT 166 Touristic Geography
TT 267 Shipping and Cruises
TT 268 Land Transportation
TT 300 Psychology of Leisure Travel
TT 300 Travel Marketing Techniques
TT 300 The Law and the Travel Industry
TT 370 Airline Transportation and Reservations Procedures
TT 375 Travel Agency Management
HR 100 Introduction to the Hospitality Industry
HR 215 Supervised Field Experience I
HR 217 Supervised Field Experience II
HR 326 Personnel Management in the Hospitality Industry
E 105 Composition
E 110 Composition & Literature
CO 100 Human Communication
HS 101 Foundations of the Western World
M 127 Finite Mathematics

2 foreign languages or electives.

Tourism and Travel Administration Certificate

Designed for those currently employed, or planning to be employed, in the tourism and travel industries, the program will prepare the individual for entry level to middle-supervisory positions at travel agencies, tour package ticket agencies, airline and land transportation installations and other tourism-related facilities. All students pursuing a certificate in tourism and travel administration are required to complete 18 credit hours. The courses are listed below:

Required Courses

TT 165 Principles of Tourism and Travel
TT 166 Touristic Geography
TT 267 Shipping and Cruises

TT 268 Land Transportation
TT 370 Airline Transportation and Reservations Procedures
TT 375 Travel Agency Management

Minor Program

A total of 18 semester hours of course work must be earned in order for a student to declare the field of tourism and travel administration as a minor area of study. The course work, 18 credits, is identical to the requirements of the certificate program.

Department of Dietetics and Institutional Management

Chairman: Assistant Professor Margaret O'Donnell, R.D., M.A., New York University

Institutional food service administration careers are focused toward mass volume feeding in schools, universities, hospitals and other health care facilities, residences for children and retirees, camps, community centers, transportation, armed forces, industrial plants and correctional units. The efficient management and supervision of such an extensive array of food service systems offers an almost unlimited challenge to students to prepare themselves academically and practically to assume responsibilities in the hospitality industry.

Dietitians are specialists educated for a profession responsible for the nutritional care of individuals and groups. This care includes the application of the science and care of human nutrition in helping people elect and obtain food for the primary purpose of nourishing their bodies in health or disease throughout the life cycle. This participation may be in single or combined functions; in food service systems management; in extending knowledge of food and nutrition principles; in teaching these principles for application according to particular situations; or in dietary counseling.

B.S., General Dietetics

The university's program in general dietetics is designed for the person seeking a career as a registered dietitian (R.D.). The program emphasizes administrative dietetics which is the management of food service systems with emphasis on health-related facilities.

Students who earn the B.S. degree in general dietetics may apply for membership in the American Dietetic Association. A student who completes professional training in an approved internship program, or who completes an accredited master's degree program with the accompanying work experience under the supervision of a registered dietitian, and passes an examination given by the American Dietetic Association, becomes a registered dietitian.

It is suggested that students enrolled in the general dietetics program choose a minor in nutrition, chemistry, biology, or computer science.

Required Courses

A minimum of 125 credit hours must be completed for the B.S. in general dietetics including the university core curriculum and those courses listed below:

DI 214 Food Service Management Systems I
DI 216 Food Service Management Systems II
DI 218 Food Service Management Systems III

HR 100 Introduction to the Hospitality Industry
HR 200 Volume Food Production and Service I
HR 202 Volume Food Purchasing
HR 204 Volume Food Production and Service II
HR 215 Supervised Field Experience I
HR 217 Supervised Field Experience II
HR 219 Supervised Field Experience III
HR 221 Supervised Field Experience IV
HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 325 Food and Labor Cost Controls
HR 326 Personnel Management in the Hospitality Industry
HR 411 Food Service Equipment and Layout Design
HR 512 Seminar in Hospitality
A 101 Introduction to Financial Accounting
CO 100 Human Communication
CO 410 Management Communication Seminar
EC 133 Principles of Economics I
MG 150 Business Data Processing
BI 115 Nutrition and Dietetics
BI 116 Fundamentals of Food Science
BI 121 General and Human Biology I with Laboratory
BI 301 Microbiology with Laboratory
BI 315 Nutrition and Disease
BI 361 Biochemistry with Laboratory
CH 103 Introduction to General Chemistry
CH 104 Introduction to General Chemistry Laboratory
CH 107 Elementary Organic Chemistry
CH 108 Elementary Organic Chemistry Laboratory
P 111 Introduction to Psychology
SO 250 Research Methods
SO 322 Sociology of Education

2 DI 300 Special Topics electives.

B.S., Institutional Food Service Administration

A student earning a bachelor of science degree in institutional food service administration is able to focus on the development of those managerial skills, competencies, and abilities essential to all professional managers, with specific concentration in those areas characteristic of institutional feeding. Mass feeding on an institutional basis can be divided into four major areas of the food service industry: college and university, business and industry, health care and governmental installations (such as penal institutions) and nursing homes and community nutrition.

Students enrolled in the institutional food service administration major are encouraged to choose a minor in nutrition, chemistry or biology.

Required Courses

In addition to the university core curriculum students must complete 123 credit hours in institutional food service administration, including those courses listed below:

DI 214 Food Service Management Systems I
DI 216 Food Service Management Systems II
DI 218 Food Service Management Systems III
HR 100 Introduction to Hospitality Industry
HR 200 Volume Food Production and Service I
HR 202 Volume Food Purchasing
HR 204 Volume Food Production and Service II
HR 215 Supervised Field Experience I

HR 217 Supervised Field Experience II
HR 219 Supervised Field Experience III
HR 221 Supervised Field Experience IV
HR 304 Cultural Understanding of Foods and Cuisines
HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 322 Marketing and Sales Promotion for the Hospitality Industry
HR 325 Food and Labor Cost Controls
HR 326 Personnel Management in the Hospitality Industry
HR 330 Institutional Environmental Services and Housekeeping
HR 410 Systems and Operations
HR 411 Food Service Equipment and Layout Design
HR 512 Seminar in Hospitality
TT 165 Principles of Tourism and Travel
A 101 Introduction to Financial Accounting
BI 115 Nutrition and Dietetics
BI 116 Fundamentals of Food Service
BI 121 General and Human Biology I with Laboratory
BI 301 Microbiology with Laboratory
CH 103 Introduction to General Chemistry
CH 104 Introduction to General Chemistry Laboratory
CO 100 Human Communication
CO 410 Management Communication Seminar
EC 133 Principles of Economics I
MG 150 Business Data Processing
P 111 Introduction to Psychology

1 HR 300 Special Topics elective.
1 political science elective.

A.S., Dietetic Technology

Dietetic technicians occupy key supervisory roles in major hospitals and other care facilities, where they work under the direction of registered dietitians. In smaller hospitals, technicians undertake key management roles where they often head the dietary department under the periodic supervision of a consulting registered dietitian.

One of the most important areas of opportunity for dietetic technicians are extended care facilities, such as nursing homes, where the technician serves as food service manager under the supervision of a consulting registered dietitian.

The dietetic technician program at the University of New Haven has full accreditation from the American Dietetic Association. Those who receive the A.S. degree in dietetic technology may then pursue the B.S. degree in general dietetics at UNH.

Required Courses

To complete the A.S. degree in dietetic technology, students must complete 69 credit hours, including the courses listed below:

DI 214 Food Service Management Systems I
DI 222 Dietetic Seminar
DI 300 Computers and Dietetics
DI 300 Nutritional Analysis of Diets
DI 300 Modification of Diets
DI 300 Computer and Food Service
HR 100 Introduction to the Hospitality Industry
HR 200 Volume Food Production and Service I
HR 202 Volume Food Purchasing
HR 204 Volume Food Production and Service II
HR 215 Supervised Field Experience I
HR 217 Supervised Field Experience II
HR 219 Supervised Field Experience III
HR 221 Supervised Field Experience IV

HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
A 101 Introduction to Financial Accounting
E 105 Composition
EC 133 Principles of Economics I
BI 121 General and Human Biology I with Laboratory
CH 103 Introduction to General Chemistry
CH 104 Introduction to General Chemistry Laboratory
HS 101 Foundations of the Western World
M 127 Finite Mathematics
SO 113 Sociology

Hospital, Institution and Educational Food Service Society (HIEFSS)

A program which includes classroom instruction and field experience in food service offering a certificate as Dietary Manager (DM) in the Hospital, Institution and Educational Food Service Society. The program is offered as certificate only, continuing education units (CEUs) or college credits.

Certificate Programs

Dietetic Technology Certificate

This certificate is specifically designed for those individuals interested in food service in health-related facilities. Emphasis will be placed on learning effective methods of management, food production and employee motivation.

Required Courses

DI 214 Food Service Management Systems I
DI 216 Food Service Management Systems II
DI 218 Food Service Management Systems III
DI 220 Food Service Management Systems IV
HR 200 Volume Food Production and Service I
HR 326 Personnel Management in the Hospitality Industry

Institutional Food Service Administration Certificate

Developed for food service personnel presently employed in institutional food service operations, this program builds supervisory skills for hospital, college, nursing home, university, health care center, and correctional institution food service departments. All students are required to take 18 credits, including the courses listed below.

Required Courses

HR 202 Volume Food Purchasing
HR 325 Food and Labor Cost Controls
HR 326 Personnel Management in the Hospitality Industry
HR 330 Institutional Environmental Services and Housekeeping
HR 410 Systems and Operations
HR 411 Food Service Equipment and Layout Design

Minor Programs

A total of 18 semester hours of course work must be earned in order for a student to declare the fields of dietetic technology or institutional food service administration as a minor area of study. The course work, 18 credits, is identical to the requirements of the various certificate programs.

See the biology department section in the School of Arts and Sciences for information on the minor in nutrition.

SCHOOL OF PROFESSIONAL STUDIES AND CONTINUING EDUCATION

Ralf E. Carriuolo, Ph.D., dean

The School of Professional Studies and Continuing Education's main objective is to provide for the educational needs of the non-traditional student: the student who holds a full-time job, the student interested in alternating periods of work with periods of full-time study, the student interested in one or more specialized courses rather than a full degree program, and the student in a non-traditional major. The school is divided into several distinct divisions to meet this variety of needs.

Division of Evening Studies

A wide variety of undergraduate courses are offered in evening sessions during the fall and spring semesters. All the offerings in this division are credit-bearing courses leading to bachelor's and associate degrees and certificate programs.

The Division of Evening Studies also administrates the summer sessions, winter intersession and certificate programs.

Cooperative Education Program

The Cooperative Education program enables the student to combine practical work experience with his or her college education. When a student enrolls in UNH's Co-op program, he or she will earn a bachelor's degree *and* a salary. And because the student works in a major-related field, he or she will be able to explore career interests first-hand.

UNH in Southeastern Connecticut

The university offers a wide range of degree programs to the Groton/New London area through its branch in that area, known as UNH in Southeastern Connecticut.

Special Studies

During both the fall and spring semesters, the university offers a number of special non-credit courses designed for the personal and professional growth of those attending. Courses generally meet once a week for 10 to 14 weeks. Continuing education units (CEUs) rather than credits are awarded for Special Studies courses.

Professional Studies

The School of Professional Studies and Continuing Education offers degree programs in these career areas: fire science; occupational safety and health and aviation science.

Bachelor of Science

Arson Investigation
Fire Science Administration
Fire Science Technology
Occupational Safety and Health

Associate in Science

Aviation Science
Fire and Occupational Safety
Occupational Safety and Health

Certificate Programs

Arson Investigation
Fire Prevention
Industrial Fire Protection
Occupational Safety and Health
Professional Pilot

Master of Science

Occupational Safety & Health Management

Division of Evening Studies

Director: Associate Dean Richard E. Farmer, Ed.D., Boston University

The University of New Haven recognizes that not every student can afford the time or expense of a full- time education. The Division of Evening Studies was established to serve those students seeking to widen their academic horizons while pursuing a career. The division is dedicated to guiding these students into programs that best suit their strengths and career needs.

The university believes that work, while a vital life experience, can be enhanced by academic study. To enrich this experience, a student's work should, if possible, be closely related to a chosen course of study.

All degree programs are offered through the Division of Evening Studies except for applied mathematics–natural sciences, English, microbiology and world music. Evening students must enroll in some day courses to receive a degree in these programs.

Most courses offered by the division, except for laboratory and certain four-semester-hour courses, meet from 7 to 9:45, one evening a week.

An evening student may carry as few as two or as many as eleven semester hours.

Admission Requirements

Generally, graduates of accredited secondary schools or persons who have a state high school equivalency diploma are eligible for admission.

Information regarding the examination for the state high school equivalency diploma may be obtained from Admissions or by writing to the Bureau of Youth Services, State Department of Education, State Office Building, Hartford, Connecticut 06103.

In some cases, a person who has completed at least two years of secondary school with a satisfactory record may be considered for

admission, provided he or she performs exceptionally well on the required placement examinations. The university is interested in evidence of maturity, motivation and formal education as prerequisites for admission. Such an admission will be tentative for one year, during which the student must pass the examinations for the state high school equivalency diploma. A person who has not completed at least two years of secondary school will not be considered for admission.

With the exception of auditors, students taking any course, whether for a degree or not, must meet admission requirements.

Applicants are required to take admission tests, including scholastic aptitude, mechanics of English and reading comprehension. College Entrance Examination Board results, if satisfactory, are accepted in place of the University of New Haven admission tests. Applicants who have completed 30 or more credit hours of work with a C average or better at an approved college or university may be exempt from taking admission examinations.

Admission Procedure

Applicants who seek admission should call or write the Division of Evening Studies to arrange for a personal interview. Interviews may be scheduled during or after office hours at the convenience of the applicant.

During the interview, the applicant will complete a personal data form, discuss and plan a program, and complete the necessary forms to request official copies of secondary school and college transcripts. The application fee is payable at that time.

Registration

All new students must register in person at the Evening Studies office. Currently enrolled students may register by mail prior to the announced deadline. Students who do not send their registration and required payments to the university on time must register in the Evening Studies office prior to making any payments in the Bursar's Office. Current students who fail to complete this procedure will have an invalid registration and cannot be assured of a seat in a class. A separate registration is required for each semester and any summer or intersession students wish to attend.

Auditors follow the same procedure and pay the same tuition and fees as students enrolled for credit.

Payment of Tuition and Fees

The student completes the registration procedure by paying tuition and fees. There is a penalty fee for delaying either process beyond the end of the registration period.

Students are urged to plan their programs carefully before completing registration forms to avoid the need for changes. Once the registration period has ended, a change of registration fee is charged for each change made. The fee is payable when the form requesting the change is submitted.

Summer Sessions

Day and evening undergraduate courses are offered during the summer in a series of sessions ranging from four to seven weeks in length. Classes during the first session begin shortly before or after graduation. Day summer courses are offered during all sessions and evening classes are held during some of the sessions.

The university welcomes visiting students from other colleges and universities who wish to transfer summer courses back to their institutions.

Credits earned at the University of New Haven are generally acceptable to other schools, but, for the protection of the student,

a letter of authorization from the parent school is required before enrollment is permitted.

University of New Haven students can attend one or more of the UNH summer sessions to lighten their study load during the regular academic year, to reduce the time required for a degree, to prepare for other courses, to make up courses or to take additional work beyond that required for a degree and still complete a program on schedule.

A list of the courses offered during the summer is available from the Division of Evening Studies.

Winter Intersession

A number of undergraduate courses are offered during the period between the fall and spring semesters. These courses blend both traditional and innovative methods of instruction, including team teaching, field trips, lectures, laboratory work and research projects. A list of courses offered during intersession will be available from the Division of Evening Studies before each session.

Certificate Programs

Students can take their first step towards an undergraduate degree by registering for a certificate program at the University of New Haven.

Each certificate program is carefully designed as an introduction to a particular course of study. Later, students may choose to apply the credits they have earned toward an undergraduate degree.

Each program consists of a series of courses—or a total of 18 to 30 credit hours—in a specialized area. The university offers certificate programs in:

School of Arts and Sciences

Fashion Design
Graphic Design
Interior Design
Journalism
Paralegal Studies
Photography
Public Policy

School of Business

Economics
Law Enforcement Science
Mass Communication
Quantitative Analysis
Security Management

School of Hotel, Restaurant and Tourism Administration

Executive Housekeeping Administration
Hotel and Restaurant Management
Tourism and Travel Administration
Dietetic Technology
Institutional Food Service Administration

School of Professional Studies and Continuing Education

Arson Investigation
Fire Prevention
Industrial Fire Protection
Occupational Safety and Health
Professional Pilot

Division of Special Studies

Director: Pamela C. Francis, M.A., University of New Haven

The Division of Special Studies offers a series of diversified non-credit certificate courses to meet the special educational needs of business, industry and professional people in Connecticut.

Special Studies

Special Studies courses, which run over a period of weeks, are developed in response to a specific need expressed to the division.

In past years, course offerings have ranged from specialized refresher courses for those planning to take either the land surveyor's examination or the professional engineering examination to courses designed to prepare students to meet the minimum requirements for real estate or insurance licensing. Courses have covered speed reading, supervisory management, effective business writing, specialized computer topics, self-help workshops and other subjects.

Special Studies courses are offered on the main campus in West Haven and at off-campus locations.

Professional Development Seminars

The division also offers a variety of professional development seminars, conferences and short-term institutes. All the courses are staffed by members of the faculty of the university or by persons recognized as experts in their fields.

The seminars and conferences are structured to meet the specific needs of people interested in furthering their education in their careers. Since these offerings are not for credit, they are developed with a great deal of flexibility but always within the instructional excellence of the university.

These seminars are either intensive in nature, lasting from one to five days, or of very short duration—three or four hours daily for two or three weeks.

The division also holds on-site seminars and programs at companies and organizations around the state.

The university awards continuing education units (CEUs) to individuals who complete any professional development seminar.

Cooperative Education Program

Director: Associate Dean Joseph J. Arnold, M.S., Southern Connecticut State College

Cooperative education, Co-op for short, is a unique program that enables a student to combine practical work experience with a college education. While enrolled in Co-op the student will earn a bachelor's degree along with a salary. And, because the student will work in a field related to his or her major, the career interest will be explored first-hand.

After full-time study during the freshman year, Co-op students select one of three, four-month work periods—September through December, January through mid-May, mid-May through August. Each student alternates work and study phases of the program. This schedule minimizes disruptions in the student's academic progress, allowing the completion of a bachelor's degree program with little, if any, extension of the traditional four-year period.

UNH's Co-op program does more than help finance school expenses. The student gets out into the real world of his/her chosen career, meeting and getting to know people, gaining experience and insight—which means a valuable head start in today's competitive job market.

For further details, students may consult the Co-op education director or their faculty advisor.

Participating Programs

Students can major in many programs at the University of New Haven and participate in Co-op. Programs include:

Arts & Sciences

- Applied Mathematics
  - –Computer Science
  - –Natural Sciences
- Communication
- Journalism
- English
- Environmental Studies
- Fashion Design (Art)
- General Studies
- Graphic Design
- History
- Interior Design (Art)
- Paralegal Studies
- Photography
- Physics
- Psychology
- Social Welfare
- Sociology

Business

- Accounting
- Air Transportation Management
- Business Administration
- Business Data Processing
- Communication
  - –Film, TV, Radio
- Criminal Justice
  - –Correctional Administration
  - –Forensic Science
  - –Law Enforcement Science
  - –Security Management
- Finance
- Management
- Marketing
- Operations Management
- Personnel Management
- Public Administration

Engineering

- Chemistry & Chemical Engineering*
- Civil Engineering
- Computer Technology
- Electrical and Computer Engineering
- Industrial Engineering & Computer Science
- Materials Technology
- Mechanical Engineering

Hotel, Restaurant and Tourism Administration

- Dietetic Technology
- Hotel & Restaurant Management
- Institutional Food Service Administration
- Tourism & Travel Administration

Professional Studies & Continuing Education

- Arson Investigation
- Aviation Science
- Fire & Occupational Safety
- Fire Science Administration
- Fire Science Technology
- Occupational Safety & Health

UNH in Southeastern Connecticut

The University of New Haven has sought to fill the educational needs of not only the New Haven area, but also the New London/Groton region in southeastern Connecticut. Currently, many undergraduate and graduate degree programs can be completed in southeastern Connecticut without the student having to travel to the main campus in West Haven.

At the undergraduate and graduate levels, there are credit and non-credit offerings in both business and engineering. Undergraduate programs include: accounting, business data processing, criminal justice, management science, operations management, personnel management, shipyard management, computer science, computer technology, electrical engineering, mechanical engineering, and shipbuilding and marine technology. At the graduate level, programs are offered in the areas of business, computer and information science, engineering, psychology, public administration, and industrial relations.

Certificate programs are also available on both levels. Senior professional certificate programs are offered for those students who already have an advanced degree. Students enrolling in these certificate programs may apply credit earned to an appropriate degree program. Courses are scheduled often enough to enable students to complete certificate programs in a relatively short period of time.

In addition to classes open to the general public, UNH in Southeastern Connecticut offers several programs to the employees of local industries on company premises. These programs include credit courses, certificate programs, non-credit courses, and executive seminars. The UNH in Southeastern Connecticut staff periodically visits local business and industry representatives in order to inform them of university offerings that may be of interest to them.

The university offers its programs at several convenient locations in the Groton/New London area. Courses are held primarily in the early evening, consistent with the schedules of an adult working population. A computer terminal facility is available to support programs in this rapidly growing field. These terminals are linked with the computer system located at the main campus in West Haven. Students enrolled in computer-oriented courses are, therefore, afforded the same level of access as students enrolled in simiilar courses on-campus. More details on the university's computer facilities can be found elsewhere in this catalog.

Admission and registration requirements for all UNH in Southeastern Connecticut programs are consistent with those for main campus students. Acceptance into a degree program offered in southeastern Connecticut, means that a student may enroll in the same program offered on the main campus. Admission and registration requirements are administered out of the local UNH in Southeastern Connecticut office.

Servicemembers Opportunity Colleges

UNH in Southeastern Connecticut has been designated as an institutional member of Servicemembers Opportunity Colleges (SOC), a group of more than 400 colleges and universities providing voluntary post-secondary education to members of the military throughout the world. As an SOC member, UNH in Southeastern Connecticut recognizes the unique nature of the military lifestyle and has

committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements, and crediting learning from appropriate military training and experiences. SOC has been developed jointly by educational representatives of each of the Armed Services, the Office of the Secretary of Defense and a consortium of thirteen leading national higher education associations; it is sponsored by the American Association of State Colleges and Universities (AASCU) and the American Association of Community and Junior Colleges (AACJC).

Professional Studies

Aviation Programs

Director: Richard H. Strauss, M.P.A., University of New Haven

The aviation industry, both commercial and general, is dynamic, employing 1.2 million people as flight and service personnel and in manufacturing. As the industry continues to expand there will be a need for additional personnel with technical skills.

The aviation program prepares students to meet the demands of the future and the career goals of the individual.

The associate in science degree in aviation science provides the students with a two-year degree program which consists of the technical aviation background required for employment as a pilot. Additionally, a concentration of courses from the Schools of Engineering, Business, or Arts and Sciences is required. Following completion of the associate's degree, students may continue for a bachelor's degree in air transportation management or in a program designed to meet their individual career objectives.

The bachelor of science degree with a major in air transportation management is offered in the School of Business. Information on that program may be found under the department of management.

Students majoring in other programs at the university may select any of the aviation courses as electives.

The flight training portion of the program includes private, commercial, instrument, instructor and multi-engine FAA certification, and may be completed at any of the university-approved regional flight schools: NewAir, Inc. (Tweed-New Haven Airport), Coastal Air Services (Groton-New London Airport), Cross-Country Aviation (Brainard Airport) and Danbury School of Aviation (Danbury Municipal Airport).

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

The Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the new university core curriculum. See page 57 for information.

B.S., Air Transportation Management

For information on the B.S. in air transportation management, see page 113 in the School of Business section.

A.S., Aviation Science

A total of 70 semester hours of credit is required for the associate in science degree in aviation science. The program is designed to be completed in two years.

Required Courses

In addition to the aviation courses listed below, students should select an area of concentration of courses in consultation with the director of aviation programs, from a program within another school of the university. This concentration will prepare students for the continuation of their education toward a bachelor's degree to meet their individual needs and career objectives.

AE 100 Aviation Science—Private
AE 105 Primary Flight—Solo*
AE 110 Aviation Meteorology
AE 115 Private Pilot Flight*
AE 130 Aviation Science—Commercial
AE 135 Commercial Flight I*
AE 140 Concepts of Aerodynamics
AE 145 Commercial Flight II*
AE 200 Aviation Science—Instrument
AE 205 Commercial Flight III*
AE 210 Aircraft Powerplants, Systems and Components
AE 230 Flight Instruction Seminar
AE 235 Instructor Flight* or AE 245 Multi-Engine Rating*
EC 133 Principles of Economics

1 history elective
Two math or science courses

*Flight training courses.

Professional Pilot Certificate

Coordinator: David P. Hunter

The aviation department offers a professional pilot certificate. Students must complete between 28 and 31 credit hours to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, students who are admitted may apply the credits earned toward the requirements for a degree program.

Required Courses

All students are required to take a minimum of 29 credit hours (or 31 credit hours if AE 235 is taken). The courses are listed below:

AE 100 Aviation Science—Private
AE 105 Primary Flight—Solo*
AE 110 Aviation Meteorology
AE 115 Private Pilot Flight*
AE 130 Aviation Science—Commercial
AE 135 Commercial Flight I*
AE 140 Concepts of Aerodynamics
AE 145 Commercial Flight II*
AE 200 Aviation Science—Instrument

AE 205 Commercial Flight III*
AE 210 Aircraft Powerplants and Systems
AE 230 Flight Instructor Seminar
AE 235 Instructor Flight* or AE 245 Multi-Engine Rating*

*Flight training courses.

Fire Science

Director: Frederick Mercilliott, D.A., Western Colorado University

In the last three years, the number of fires in this country increased more than 100 percent, while arson increased at an alarming rate of 300 percent.

This increase in the loss of life and property has triggered a rapidly growing need for trained professionals in the fire science field.

To meet this need, the University of New Haven offers four undergraduate degrees and two certificate programs that provide specialized training for fire professionals in mid-career as well as programs designed for those entering the field.

Students in the bachelor's degree programs must complete all the credits required for the associate in science with a major in fire and occupational safety, or their equivalent, earned at the University of New Haven or elsewhere. Equivalent work substitution is subject to evaluation by the director of fire science.

The student is advised to check with the director of fire science or the specific instructor for the proper background for the various fire science courses. It is recommended that the fire science courses be taken in the proper sequence along with the necessary electives.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

The Core Curriculum

In addition to department requirements, students must fulfill all requirements of the new university core curriculum. See page 57 for information.

B.S., Arson Investigation — Minor in Criminal Justice

The bachelor of science program in arson investigation provides a much-needed program for the numerous firefighters, police officers and insurance people who must deal with arson, the fastest growing crime in the country.

By combining studies in arson investigation with a minor in criminal justice, students will become knowledgeable with the behavioral sciences, criminal justice and criminal law background needed by an arson investigator.

Required Courses

Students earning the B.S. in arson investigation must complete 127 credit hours including the university core curriculum and those courses listed below:

FS 106 Fire Strategy and Tactics
FS 201 Essentials of Fire Chemistry with Laboratory
FS 202 Principles of Fire Science Technology
FS 207 Fundamentals of Fire Prevention
FS 301 Building Construction, Codes and Standards
FS 303 Fire Protection Fluids and Systems
FS 304 Fire Detection and Control
FS 306 Fire and Casualty Insurance
FS 402 Arson Investigation I
FS 404 Special Hazards Control
FS 405 Fireground Management
FS 406 Arson Investigation II
FS 407 Arson Lab
A 111 Introductory Accounting I
CH 102 Criminal Law
CH 103 General Chemistry I
CH 104 General Chemistry I Laboratory
CJ 201 Principles of Criminal Law
CJ 215 Introduction to Forensic Science
CJ 217 Criminal Procedure I
CJ 218 Criminal Procedure II and Evidence
CJ 221 Juvenile Delinquency
CJ 311 Criminology
EC 133 Principles of Economics I
IE 223 Personnel Administration
M 127 Finite Math
M 228 Elementary Statistics
P 111 Introduction to Psychology
P 336 Abnormal Psychology
PA 101 Introduction to Public Administration
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics Laboratory I
PH 106 General Physics Laboratory II
SO 113 Sociology
SO 214 Deviance

B.S., Fire Science Administration

Students majoring in fire science administration learn how to bring contemporary business management techniques to the administration and development of a modern fire department.

Required Courses

Students earning the B.S. in fire science administration must complete 128 credit hours. These courses must include those required for the A.S. in fire and occupational safety, which are listed later in this section, the university core curriculum plus the courses listed below.

FS 301 Building Construction, Codes and Standards
FS 303 Fire Protection Fluids and Systems
FS 306 Fire and Casualty Insurance
FS 402 Arson Investigation I
FS 403 Process and Transportation Hazards
FS 404 Special Hazards Control
FS 405 Fireground Management
FS 406 Arson Investigation II
FS 407 Arson Investigation II Laboratory
FS 498 Research Project
FS 499 Research Project
A 111 Introductory Accounting
CE 407 Contracts & Specifications
EC 133 Principles of Economics

IE 233 Cost Control
MG 231 Industrial Relations
PA 408 Collective Bargaining in the Public Sector
SO 113 Sociology

Recommended Courses

CJ 201 Principles of Criminal Investigation
CJ 215 Introduction to Forensic Science
FS 304 Special Hazards Control

B.S., Fire Science Technology

As its name implies, this program is more deeply concerned with the technological aspects of fire science. The stress is primarily on fire prevention. Many of the courses cover various engineering fields adapted to the problems that will confront the fire technologist. The essentials of fire chemistry; dynamics; statics; the way in which materials behave under various conditions of stress including heat, process and transportation; the design of industrial structures and conveyances for the maximum protection of the worker and the public are essential areas of study.

Courses in fire prevention play a role almost equal to that of fire investigation. These include an investigation of fire suppression fluids and systems, hydraulics and thermodynamics. The student who completes this program is a planner, a designer of fire prevention systems, and a judge of facilities and equipment.

Required Courses

Students majoring in fire science technology are required to complete 128 to 132 credit hours including the university core curriculum. In addition to completing the requirements for the A.S. degree in fire and occupational safety, students must complete the following courses:

FS 301 Building Construction, Codes and Standards
FS 303 Fire Protection Fluids and Systems
FS 304 Fire Detection and Control
FS 402 Arson Investigation I
FS 403 Process and Transportation Hazards
FS 404 Special Hazards Control
FS 405 Fireground Management
FS 406 Arson Investigation II
FS 498 Research Project
FS 499 Research Project
CE 201 Statics
CE 302 Building Construction
CE 315 Environmental Engineering & Sanitation
CE 316 Code Administration
CE 407 Contracts & Specifications
M 117 Calculus I
M 118 Calculus II
MT 200 Engineering Materials
SO 113 Sociology

Recommended Courses

CJ 201 Principles of Criminal Investigation
CJ 215 Introduction to Forensic Science

A.S., Fire and Occupational Safety

The two-year associate in science degree offers students a well-rounded program in safety planning and techniques in both the fields of occupational safety and fire science.

Many students continue for their bachelor's degrees in the fire science field and/or become valuable members of municipal fire departments and safety investigation teams.

Required Courses

To complete the associate in science degree in fire and occupational safety, 67 credit hours are required including those courses listed below:

FS 105 Municipal Fire Administration
FS 106 Fire Strategy and Tactics
FS 201 Essentials of Fire Chemistry with Laboratory
FS 202 Principles of Fire Science Technology
SH 100 Safety Organization and Management
SH 200 Elements of Industrial Hygiene
SH 400 Occupational Safety and Health Legal Standards
BI 121 General Biology with Laboratory (or other biology elective)
CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
CH 107 Elementary Organic Chemistry I
CH 108 Elementary Organic Chemistry I Laboratory
IE 223 Personnel Administration
M 115 Pre-Calculus Mathematics
M 228 Elementary Statistics
MG 125 Management and Organization
P 111 Introduction to Psychology
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics Laboratory I
PH 106 General Physics Laboratory II

Minor in Fire Science

Any students wishing to minor in fire science should contact the director of their program. A minimum of 18 credit hours is required. The courses listed below are required unless a substitution is approved by the director of fire science.

Required Courses

FS 105 Municipal Fire Science Administration
FS 106 Fire Strategy and Tactics
FS 201 Essentials of Fire Chemistry with Laboratory
FS 202 Principles of Fire Science Technology
FS 303 Fire Protection Fluids and Systems
FS 304 Fire Detection and Control

Fire Science Certificate Programs

Coordinator: Frederick Mercilliott, D.A.

The fire science department offers certificates in fire arson investigation and fire science. Students must complete between 21 and 30 credit hours depending on the program to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, students who are admitted may apply the credits earned toward the requirements for a bachelor's degree in fire science.

Arson Investigation Certificate

This certificate is designed to provide those in either the public or private sector with the scientific and legal knowledge needed to analyze situations for the possibility of arson. All students are required to take 30 credit hours, including the courses listed below:

Required Courses

CJ 102 Criminal Law
CJ 201 Criminal Investigation
CJ 215 Introduction to Forensic Science
FS 105 Municipal Fire Administration*
FS 201 Fire Science Chemistry
FS 207 Fire Prevention
FS 304 Fire Detection and Control
FS 402 Arson Investigation I
FS 406 Arson Investigation II
FS 599 Independent Study

*Criminal justice majors may substitute PA 101 Introduction to Public Administration; transfer students may substitute police administration.

Fire Prevention Certificate

This certificate is designed to provide the essentials of fire science theory, fire detection and control techniques, and the administrative/legal aspects of fire protection. The program is applicable to the needs of both the private and public sectors of the fire protection profession. All students are required to take 21 credit hours, including the courses listed below:

Required Courses

FS 207 Fire Prevention
FS 301 Building Construction, Codes and Standards
FS 303 Fire Protection Fluids and Systems
FS 304 Fire Detection and Control
FS 402 Process and Transportation Hazards
FS 404 Special Hazards and Controls

A security course (CJ) or safety course (SH) may be substituted for FS 301, FS 304 or FS 403.

Industrial Fire Protection Certificate

This certificate provides the student with the basic essentials of fire science theory and safety procedures necessary for a position in the private sector. All students must take 24 required credits plus 6 elective credits for this certificate.

Required Courses

FS 207 Fundamentals of Fire Protection
FS 303 Fire Protection Fluids and Systems
FS 304 Fire Detection and Control
FS 308 Industrial Fire Protection
FS 309 Industrial Fire Hazards
FS 403 Process and Transportation Hazards
FS 404 Special Hazards and Control
FS 408 Fire Protection Law *or* FS 400 OSH Legal Standards

Plus electives approved by the department chairman.

Occupational Safety and Health

Coordinator: Robert P. Barrows, C.S.P., C.P.P., M.B.A., University of Connecticut

Passage of the Occupational Safety and Health Act (OSHA) in 1970 focused attention on health and safety issues from every factory and office in the nation right up to the Office of the President of the United States and the Supreme Court.

This great interest in safety issues has generated growing demand for professional practitioners in the field. Industry, retailing, commerce, communications, construction, and labor unions, as well as local, state and federal government, need competent safety specialists.

The demands placed upon the safety professional require a broad background in chemistry, physics, engineering, psychology and biology. The interdisciplinary program draws upon the resources of the entire university. In addition to required courses, students choose from among a diversified offering of restricted and free electives with a balance of courses designed to meet the needs and interests of individual students.

In addition to the four-year bachelor of science program in occupational safety and health, the university also offers a two-year associate degree program in safety and an occupational safety and health certificate.

In developing course content, accreditation guidelines laid down by the American Society of Safety Engineers (ASSE), the Board of Certified Safety Professionals (BCSP), and the National Institute of Occupational Safety and Health (NIOSH) have been followed.

The Co-op Program

The department participates in the Cooperative Education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.S., Occupational Safety and Health

Candidates for the bachelor's degree in occupational safety and health are required to complete 129 credit hours including the university core curriculum. These courses must include those required for the associate degree, plus the courses listed below:

Required Courses

BI 121	Biology I
BI 131	Biology I Laboratory
BI 510	General Environmental Health
CH 110	Environmental Chemistry
FS 304	Fire Detection and Control
IE 348	Manufacturing Processes
M 117	Calculus I
M 118	Calculus II
P 111	Psychology
PH 130	Radiation Safety
SH 210	Sound-Hearing Noise
SH 400	OSH Legal Studies

12 hours of restricted electives to be selected with advisor.
15 hours of free electives.

A.S., Occupational Safety and Health

Students earning the A.S. in occupational safety and health must complete 66 credit hours including these courses listed below:

Required Courses

CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
E 220 Writing for Business and Industry
FS 201 Essentials of Fire Chemistry with Laboratory
IE 105 Introduction to Computers–COBOL
IE 223 Personnel Administration
IE 233 Cost Control
M 115 Pre-Calculus Mathematics
M 228 Elementary Statistics
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics I Laboratory
PH 106 General Physics II Laboratory
SH 100 Safety Organization & Management
SH 110 Accident Conditions & Controls
SH 200 Elements of Industrial Hygiene

9 hours of free electives.

Occupational Safety and Health Certificate

Coordinator: Robert P. Barrows, M.B.A.

The department offers an occupational safety and health certificate for which students must complete 18 credit hours. Students may choose to take these courses with or without credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted at a later date, the credits earned may be applied toward the requirements for a degree program.

This program of study covers the fundamentals of on-the-job safety and health as well as the requirements of the OSHA law. These courses provide an introduction to most situations that a new safety professional would have to confront.

Required Courses

SH 100 Safety Organization and Management
SH 110 Accident Conditions and Controls
SH 200 Elements of Industrial Hygiene
SH 210 Sound-Hearing-Noise
SH 400 OSHA Legal Standards
FS 304 Fire Detection and Control

COURSES

Accounting*

A 101 Introduction to Financial Accounting
Opened only to non-accounting majors. Deals primarily with reporting the financial results of operations and financial position to investors, managers and other interested parties. Emphasizes the role of accounting information in decision making. 3 credit hours.

A 102 Introduction to Managerial Accounting
Prerequisite: A 101. This course is open only to non-accounting majors. The application of accounting in relation to current planning and control, evaluation of performances, special decisions, and long-range planning. Stress is on cost analysis. Additional topics include income tax planning, product costing and quantitative techniques. 3 credit hours.

A 111 Introductory Accounting I
This is a prerequisite to all other courses in accounting. A fundamental examination of the concepts, principles and procedures embodied in the financial accounting system. Emphasis will be placed upon the preparation of financial statements for service-rendering and merchandising business concerns through the application of financial accounting principles. 3 credit hours.

A 112 Introductory Accounting II
Prerequisite: A 111. An extension of the fundamental examination developed in A 111 to include the application of financial accounting principles to manufacturing business concerns. Additional emphasis will be placed upon an introduction to, and application of, managerial accounting principles for planning and controlling manufacturing operations. 3 credit hours.

*Note: Due to expanding use of computing capabilities, a computer use fee may be changed for any accounting course.

A 221 Intermediate Financial Accounting I
Prerequisite: A 112. A rigorous examination of financial accounting theory and practice applicable to the corporate form of business organization. With an emphasis upon reporting corporate financial status and results of operations, the course will include: the principles governing, and the procedures implementing, accounting valuations for revenue, expense, gain, loss, current assets and deferred charges. Throughout, reference is made to the relevant publications of professional accounting societies and associations. 3 credit hours.

A 222 Intermediate Financial Accounting II
Prerequisite: A 221. Continuing the emphasis upon corporate financial reporting established in A 221. The principles and procedures applicable to accounting valuations for current liabilities, long-term liabilities, deferred credits and stockholders equity are examined. Special attention is directed to preparing the statement of changes in financial position. Additional topics include income tax allocation, pensions and leases, accounting changes, price level changes, installment sales and consignments. Throughout, reference is made to the relevant publications of professional accounting societies and associations. 3 credit hours.

A 223 Cost Accounting I
Prerequisite: A 112. An in-depth examination of the financial accounting principles and procedures underlying the determination and reporting of product costs for manufacturing concerns. Emphasis is placed upon the concepts and classifications of product costs (direct material, direct labor and manufacturing overhead), as well as the recording and accumulating of such costs within job order and process cost accounting systems. 3 credit hours.

A 224 Cost Accounting II
Prerequisite: A 223. A continuation of the emphasis on product-cost determination established in A 223, integrated with an examination of accounting systems for managerial planning and control Topics include budgeting, standard costs, variance analysis, direct costing, cost-volume-profit analysis and joint and by-product costing. 3 credit hours.

A 225 Advanced Managerial Accounting
Prerequisite: A 224. A comprehensive analysis of the uses and behavioral implications of managerial accounting information. Emphasis will be placed upon the economic and motivational impact of internal accounting information for planning and controlling operations. Topics include budgets (capital and operating), performance reports, responsibility accounting (cost, profit and investment centers), transfer-pricing, performance measurement, contribution reporting, pricing methods and relevant costs of decision making. 3 credit hours.

A 331 Advanced Financial Accounting I
Prerequisite: A 222. A concentrated examination of financial accounting concepts and the principles and procedures applicable to partnership and consolidation accounting. Partnership topics include: formation and division of income, changes in ownership and liquidation. Consolidation topics include comprehensive coverage of the cost and equity methods, as well as other issues (purchase versus pooling of interests, entity theory, etc.) related to consolidation accounting. Other financial accounting topics of a specialized nature not previously covered may be included at the discretion of the instructor. 3 credit hours.

A332 Advanced Financial Accounting II
Prerequisite: A222. An examination and evaluation of the literature generated by authoritative financial accounting boards to determine its effect on the structure of financial accounting theory, its impact on financial accounting practice and its implications for the future role of the accountant. Extensive use is made of the publications of professional accounting societies and accounting associations. 3 credit hours.

A333 Auditing and Reporting Principles
Prerequisite: A222. A general examination of the role and function of the independent auditor in the performance of the attest function. Emphasis will be placed on current auditing pronouncements, the audit report, statistical sampling, evaluation of internal control and the determination of the scope of an audit. Rules and standards of compilation and review reports are presented. 3 credit hours.

A334 Auditing Procedures
Prerequisite: A333. An examination and evaluation of the detailed procedures associated with auditing accounts related to a firm's financial position, changes in financial position and operating results. An evaluation and documentation of internal control procedures will be an integral aspect of the evaluation of the fairness of accounting balances. A practice audit case will be used to develop an appreciation for the application of auditing techniques. 3 credit hours.

A335 Federal Income Taxation I
Prerequisite: A112. An introduction to the federal income tax law including history, economic and social aspects, sources of tax law and administration. Course coverage will be devoted primarily to individual taxation, including determination of gross income, deductions, exemptions, filing status and alternative methods of tax computation. 3 credit hours.

A336 Federal Income Taxation II
Prerequisite: A335. A continuation of A335 including coverage of property transactions, capital gains and losses, non-taxable exchanges, tax accounting methods and elections, tax periods, tax credits, and introduction to taxation of corporations, subsidiary corporations and partnerships. 3 credit hours.

Art

AT101-102 Introduction to Studio Art
Foundation study in the visual arts designed to heighten the student's aesthetic awareness and to provide an introduction to the study of drawing, painting and design using a variety of materials. 3 credit hours.

AT104 Weaving
Introduction to the basic techniques, including tapestry and using simple looms with study of various fibers. 3 credit hours.

AT105 Basic Drawing I
A basic foundation course which includes a disciplined study in the fundamentals of drawing such as nature studies, perspective, exercises in coordination of hand and eye. 3 credit hours.

AT106 Basic Drawing II
A continuation of AT105 with emphasis on perspective and depiction of three-dimensional space and form by two-dimensional means. Study of architectural forms, natural objects and landscape. 3 credit hours.

AT122 Basic Graphic Design Production
Prerequisite: AT100 level course, AT312 or consent of the instructor. Studio introduction to the technical skills of graphic design including: copyfitting, type specification, typesetting, layout and mechanical preparation

AT201 Painting I
Problems in pictorial composition involving manipulation of form and color. Various techniques of applying pigment will be explored as well as mixing pigments, stretching and priming canvases. 3 credit hours.

AT202 Painting II
A continuation of AT201 with further exploration of two-dimensional pictorial arrangements of form and color for greatest visual effectiveness. Students will be encouraged to develop their own personal idiom in the medium. 3 credit hours.

AT203 Intermediate Graphic Design I
Prerequisites: AT122; AT312; AT221 or AT222 or consent of instructor. Exploration of graphic design problems emphasizing integration of form development with content application. Intended to develop student's ability to communicate ideas and feelings effectively through visual means.

AT204 Intermediate Graphic Design II
Prerequisite: AT203 or consent of the instructor. A continuation of AT203 with emphasis on the application of design principles to actual job situations from the original concept to the mechanical. 3 credit hours.

AT205 Ceramics I
Introduction to clay as an expressive medium. Hand-built and wheel-thrown methods with various glazing and decorative techniques. Stacking and firing kilns. An exploration of three-dimensional form. Good for engineers. Laboratory Fee. 3 credit hours.

AT206 Ceramics II
Continuation of AT205 with free exploration of novel and experimental approaches to the medium. Laboratory Fee. 3 credit hours.

COURSES

AT211 Basic Design I
A basic foundation course includes exploration of two-dimensional visual elements—line, color, light and dark, shape, size, placement, and figure-ground, and their effective use. A basic course for those wishing basic art understanding. 3 credit hours.

AT212 Basic Design II
A continuation of AT211, with concentration on three-dimensional elements of design including positive and negative volumes, surfaces, structural systems, etc., employing a variety of materials. 3 credit hours.

AT213 Color
An intensive exploration of color perception and interaction with manipulation of form and color for greatest effectiveness in pictorial compositions. 3 credit hours.

AT216 Architectural Drawing
Prerequisite: AT105. Drawing as applied to architectural problems. Drafting, drawing conventions, presentations, graphic symbols, line quality and context, and free hand drawing. 3 credit hours.

AT221 Typography I
Prerequisites: AT122; AT211; AT312 or instructor's consent. Studio course examining how type is used in the creation of visual design. The student will gain an understanding of the relationships of language, type and design in the communication of ideas by means of printed material.

AT222 Typography II
Prerequisites: AT221 or instructor's consent. A continuation of Typography I with emphasis on practical applications of typographical skills already acquired.

AT231 History of Art I
Western Art from cave art through the Middle Ages to Gothic. This course seeks to understand expressive, social, cultural, political and economic aspects of the cultures in which specific art styles and visual developments emerged. This course forms the basic vocabulary for History of Art II. Includes economic and technological changes in the societies and their reflections in art. Appropriate for business and engineering students. 3 credit hours.

AT232 History of Art II
Western Art from the Renaissance to the twentieth century in Europe and America; a continuation of AT231. 3 credit hours.

AT233 History of Interior Design
A survey of developments in the decorative arts from antiquity to the present day. Special consideration of the aesthetic and practical relationships of architectural space to interior decor. For the major and those interested in home decoration. 3 credit hours.

AT302 Figure Drawing
Prerequisites: AT105, AT106, AT107. A more advanced study of drawing which concentrates on the human figure. 3 credit hours.

AT304 Sculpture I
The exploration of three-dimensional materials for maximum effectiveness in expressive design. Experimentation with clay, plaster, wood, stone, canvas, wire screening, metal, found objects. A basic understanding of major, fundamental methods: casting and carving. Laboratory Fee. 3 credit hours.

AT305 Sculpture II
A continuation of AT304 with further exploration of three-dimensional materials and the possibilities they present for creative visual statements. Laboratory Fee. 3 credit hours.

AT309 Photographic Design
Prerequisite: AT313 or AT314. Introduction to basic materials and techniques of black and white photography used in graphic design. The image as it relates to type and other art work, including posters, advertisements, manuals, etc. Laboratory Fee. 3 credit hours.

AT312 Lettering Design
Design and execution of basic hand lettering; utilization of hand lettering and type in the design of printed matter; use of letter forms as an element of visual design.

AT313-314 Photography I and II
Introduction to basic techniques, materials and aesthetic aspects of black and white photography. Laboratory course with emphasis on the individual student's image making. Photography II gives special attention to problems dealing with images in groups, series and sequences. New techniques and technical demonstrations. Laboratory Fee. 3 credit hours each.

AT315 Printmaking
The expressive potential of the graphic image through the techniques of silkscreen, wood cut, wood engraving, linoleum blockprint, collotype, monotype and photo-silkscreening. Problems in black-and-white and color. Laboratory Fee. 3 credit hours.

AT317 Interior Design
Prerequisites: AT211 or AT212; AT233 or instructor's consent. A basic studio course with exploration of interior design problems and their relationship to architecture. Special emphasis on exploitation of space, form, color and textures for greatest effectiveness. 3 credit hours.

AT319 Textile Design
Prerequisites: AT104; AT211 or AT212 or instructor's consent. Studio course in design of fabrics. Study of various fibers and their characteristics for practical application in fashion and interior design. Laboratory Fee. 3 credit hours.

AT320-321 Fashion Design I-II
Prerequisites: AT211, AT212 or instructor's consent. Studies in fashion design with particular attention to the characteristics of various fabrics; color, texture, pattern and draping qualities as used in fashion applications. Fashion show co-ordination, accessories and makeup. 3 credit hours.

AT322 Illustration
A solid foundation in the techniques of creative illustration. Various media and their expressive possibilities will be studied; charcoal, pencil, pen and ink, wash, colored pencils, acrylic. Focuses on application of these techniques. 3 credit hours.

AT330 Film Animation
The basic techniques and concepts of film animation as used in cartooning, titling, advertising and fine art. Students will work individually or in groups on their own animation projects. 3 credit hours.

AT331 Contemporary Art
Focusing on art since 1945. The development of the present stems from ideas emanating from the 1870s—especially Impressionism; this course seeks to understand these connections. Emphasis on economic historical and technological developments. Appropriate for business, communication, history and engineering students. 3 credit hours.

AT333 Survey of Afro-American Art
Black art in the United States from the Colonial period to the present. Consideration of African cultural influences. Analysis of modern trends in Black art. 3 credit hours.

AT401 Studio Seminar I
Prerequisites: AT101-102, AT 201, AT302 or AT313, and art electives. Drawing on developments through their previous study, students will concentrate on major projects in the areas of their choice. 1-4 credit hours.

AT402 Studio Seminar II
Prerequisite: AT401. Continuation of Studio Seminar I. 1-4 credit hours.

AT403-412 Topics in the Visual Arts
Variable credit.

AT599 Independent Study
Prerequisites: consent of the instructor and chairman of department. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1-3 credit hours.

Aviation

Flight training costs are based on rates at university-approved flight training schools. This cost is not included in the university tuition charges and should be paid directly to the flight school.

An asterisk (*) indicates flight training courses which may be completed at any of the university-approved flight training schools in Connecticut. The student must register for these courses at the university in order to receive credit and be eligible for related aviation degree programs.

AE100 Aviation Science—Private
Basic ground instruction in aircraft systems and controls. FAA regulations, air traffic control, communication, weight and balance, meteorology, navigation, radio facilities and utilization, flight computer and aerodynamic theory. Successful completion of FAA Private Pilot airplane written examination is required. 3 credit hours.

***AE105 Primary Flight—Solo**
Corequisite: AE100. Introduction to flight. Concentration on the development of flying skills for solo flight. Course includes ground instruction required for each flight lesson. Minimum flight time requirements: dual instruction—10 hours; ground trainer—20 hours; solo—3 hours; discussion—4 hours. Laboratory Fee. 1 credit hour.

AE110 Aviation Meteorology
Discussion and interpretation of atmospheric phenomena including an analysis of aviation forecasts and reports. 3 credit hours.

***AE115 Private Pilot Flight**
Prerequisite: AE105. Flight training in preparation for private pilot certification. This course includes solo practice of maneuvers to increase proficiency, cross country flying, and flight test preparation. Private pilot certification is required. Minimum flight time requirements: dual instruction—12 hours; solo—13 hours; discussion—8 hours. Laboratory Fee. 2 credit hours.

AE120 Foundations of Aviation
A study of the development of aviation from the first efforts to fly through the present. The social and economic impact of aviation on society will be explored. 3 credit hours.

AE130 Aviation Science—Commercial
Prerequisite: AE100. Advanced ground instruction in navigation, flight computer, radio navigation, aircraft performance, engine operation, aviation physiology and FAA regulations including FAR Parts 121 and 135. Successful completion of FAA. Commercial Pilot airplane written examination is required. 3 credit hours.

***AE135 Commercial Flight I**
Prerequisite: AE115. Continuation of flight instruction and practice for the purpose of developing a high degree of judgment and coordination through practice of advanced maneuvers and cross country flights. Minimum flight time requirements; dual instruction—23 hours; solo—40 hours; ground instruction—8 hours. Laboratory Fee. 2 credit hours.

AE140 Concepts of Aerodynamics
The study of basic aerodynamics including theory of flight, analysis of the four forces, high lift devices, subsonic, transonic and supersonic flight. 3 credit hours.

COURSES

***AE145 Commercial Flight II**
Prerequisite: AE135. Introduction to basic instrument flying and transition into high performance complex single engine aircraft. Additional cross country and night flying practice. Minimum flight time requirements: dual instruction—22 hours; solo—16.2; ground trainer or aircraft (instrument)—7 hours; ground instruction—8 hours. Laboratory Fee. 2 credit hours.

AE200 Aviation Science—Instrument
Prerequisite: AE130. Ground instruction in preparation for the FAA Instrument Rating. Study includes a discussion of pertinent regulations, IFR departure, enroute, and arrival procedures, flight planning, instrument approaches, air traffic control procedures and a review of meteorology. Successful completion of FAA Instrument-Airplane written examination is required. 3 credit hours.

***AE205 Commercial Flight III**
Prerequisite: AE145. Instrument instruction involving navigation, enroute, holding, and approach procedures. At the completion of this course the student will be qualified for commercial pilot certification as well as instrument pilot rating certification. Commercial and instrument pilot certification is required. Minimum flight time requirements: dual instruction—22 hours; solo—21 hours; ground trainer—3 hours; ground instruction—8 hours. Laboratory Fee. 2 credit hours.

AE210 Aircraft Powerplants, Systems and Components
Prerequisite: AE100. Discussion of the fundamentals of design and performance of aircraft engines including methods of construction, lubrication, carburation, engine operating procedures and control. In addition, the theory of operation and analysis of problems associated with aircraft components and systems, involving reciprocating and jet aircraft. 3 credit hours.

AE230 Flight Instructor Seminar
Prerequisite: AE200. Discussion of the fundamentals of instruction with specific emphasis on teaching as related to the flight instructor. Detailed study and analysis of maneuvers and topics required of the flight instructor. In addition, emphasis will be placed on practice teaching. Successful completion of FAA written examinations (Flight Instructor Airplane and Fundamentals of Instructing) is required. 3 credit hours.

***AE235 Instructor Flight**
Prerequisite: AE205. Flight instruction flight training in preparation for the FAA Practical Flight Test. Concentration on communication and analysis of maneuvers and procedures. Minimum flight time requirements; dual instruction—15 hours; solo—5 hours; ground instruction—5 hours. Laboratory Fee. 1 credit hour.

***AE245 Multi-Engine Rating**
Prerequisite: AE205. Prepares the commercial pilot for the FAA Multi-Engine Rating. Includes discussion of principles of multi-engine flight as well as flight training required for the rating. Multi-engine certification is required. Minimum flight time requirements: dual instruction—approximately 10 hours; ground instruction—approximately 10 hours. 1 credit hour.

AE310 Air Transportation Management
Prerequisite: senior standing or academic advisor's approval. Discussion of air commerce related to the transportation system. This course includes a study of commercial airlines and fixed-base operations. 3 credit hours.

AE400 Airport Management
Prerequisite: senior standing or academic advisor's approval. Discussion and study of operational functions of airports, general aviation operations, terminal building utilization, support facilities, public relations and airport financing as related to the airport manager. 3 credit hours.

AE410 Corporate Aviation Management
Prerequisite: senior standing or approval of academic advisor. Discussion and study of the importance of air transportation to the corporation; operational structure and concepts; cost analysis and budget techniques; aircraft analysis; personnel selection and management; aircraft maintenance; training; and scheduling. 3 credit hours.

Biology and Environmental Studies

Biology courses marked with an asterisk (*) are usually scheduled every other academic year. Courses marked with a dagger (†) may be offered at the discretion of the department

BI115 Nutrition and Dietetics
Types of foods, vitamins, minerals, enzymes, hormones and the processes and products of digestion. Factors and effects of malnutrition and food additives. Concepts and composition of balanced and special diets. 3 credit hours.

BI116 Fundamentals of Food Science
Types of nutrients in foods; the action of the body on these, and the action of nutrients on the body. Also discussed are methods of preservation, storage, spoilage, sanitation, food contaminants and food as a waste product.

3 credit hours.

BI121-122 General and Human Biology with Laboratory I and II
An introduction to the study of biology which integrates biological principles and human biology. Major topics covered are biochemistry, cell and molecular biology, genetics, anatomy and physiology, behavior, ecology and evolution. The laboratory involves experimentation and demonstration of principles covered in lecture. BI121 is a prerequisite for BI122. Laboratory Fee. 4 credit hours each semester.

†BI152 Horticulture
Introduction to cultivated plants. Special attention will be paid to the evolution and selection of interesting species, propagation, identification and classification. Inter-relationships with plants and animals and economic importances will be covered. Lectures, labs, greenhouse work and field trips are scheduled. This course may not be used by students to satisfy a science requirement, nor may it be used as biology or science elective in any program in the department of biology, environmental studies and general science. 3 credit hours.

***BI201 Genetics**
Prerequisite: BI122. Mendelian genetics and developments that have produced the modern concept of inheritance; the role of DNA and theories of the chemical basis of heredity. Various aspects of human, medical and population genetics and the role of these in evolutionary processes. 3 credit hours. Fall 1985.

†BI202 Genetics Laboratory
Prerequisite: BI201. Theory and techniques using flies, yeasts, bacteria and viruses to illustrate the classical genetic theories. An introduction to biometrics. One assigned lecture-laboratory session and one laboratory period unassigned. Laboratory Fee. 2 credit hours.

***BI210 Human Anatomy and Physiology with Laboratory**
Prerequisite: BI121. Structure and function of the human body in health and disease. A study of the essential characteristics of all the organ systems and the way they contribute to the functions of the body as a whole. May be taken in place of BI122, General Biology II. Course includes 3 class hours and one 3-hour laboratory per week. Laboratory Fee. 4 credit hours.

***BI220 General Ecology with Laboratory**
Prerequisite: one course in the biological sciences. The interactions of living organisms, including man, with each other and with their environment. Discussion of population regulation, community structure, geochemistry and energetics. Laboratory Fee. 4 credit hours. Fall 1984.

***BI221 Human Ecology**
Understanding human involvement in and alteration of ecosystems through overpopulation, use of resources and pollution. Consideration of economic, cultural and behavioral factors. 3 credit hours.

†BI223 Human Ecology Laboratory
Prerequisite: BI220 or BI221. Laboratory or field work devoted to current environmental problems, such as population trends, land use, resources, pollution, waste disposal and transportation. The course includes two lectures and one laboratory per week. Laboratory Fee. 3 credit hours.

†BI225 Evolution
Discussion of the processes responsible for the origin and evolution of life on earth. Special attention is given to the evolution of human beings. 3 credit hours.

†BI227 Entomology with Laboratory
Prerequisite: BI122. Study of classification, evolution, anatomy, development, ecology, and natural history of insects, arachnoids and other terrestrial arthropods. Medical and economic aspects will also be stressed. Laboratory Fee. 4 credit hours.

†BI253-254 Biology for Science Majors with Laboratory I and II
A discussion of the principles of biological organization from the molecular level through the ecological. The basic course for biology and environmental studies majors. Laboratory Fee. 4 credit hours each semester.

†BI291-292 Biology Teaching Laboratory
Prerequisites: BI122 and consent of the instructor. Designed for prospective teachers, department majors and laboratory assistants. Students supervised by an instructor in techniques concerning laboratory instruction, testing, grading, purchase and inventory of supplies and equipment. 2 credit hours.

***BI301 Microbiology with Laboratory**
Prerequisites: BI121, CH103. A history of microbiology and a survey of microbial life. Includes viruses, rickettsia, bacteria, blue-green algae and fungi; their environment, growth, reproduction, metabolism and relationship to man. Laboratory Fee. 4 credit hours. Fall 1984.

†BI302 Bacteriology with Laboratory
Prerequisites: BI121, CH103. Theoretical and laboratory study of the morphology, physiology and classification of bacteria. The application of these facts to agriculture, industry, sanitation, public health and disease. Laboratory Fee. 4 credit hours.

COURSES

***BI303 Histology with Laboratory**
Prerequisite: BI121. Microscopic and chemical structure of normal organs and tissues and their cell constituents as related to function. Microscopic observations, tissue staining and slide preparation. Laboratory Fee. 4 credit hours. Fall 1984.

***BI304 Immunology with Laboratory**
Prerequisites: BI121, CH103 or CH115. The nature of antigens and antibodies, formation and action of the latter, other immunologically active components of blood and tissues and various immune reactions. Laboratory Fee. 4 credit hours. Fall 1985.

***BI307 Comparative Vertebrate Anatomy with Laboratory**
The structure, origin and evolutionary history of the vertebrate organ systems. In the laboratory, representative species of each vertebrate class are dissected with attention given to the individual organ systems. Laboratory Fee. 4 credit hours. Spring 1986.

***BI308 General Physiology with Laboratory**
Prerequisites: CH116, PH104, PH106. Basic theories of physiology as applied to plants and animals. Practical aspects and experimental techniques studied in the laboratory. Laboratory Fee. 4 credit hours. Spring 1985.

†BI309 Plant Morphology and Taxonomy with Laboratory
Comparative plant structure and reproduction, particularly as related to the classification of plants. Laboratory involves examination of microscopic slides, models, preserved specimens and dissected materials. Laboratory Fee. 4 credit hours.

***BI315 Nutrition and Disease**
Prerequisites: BI115, BI121-122. Aspects of diet in treating and preventing various symptoms and syndromes, diseases, inherited errors of metabolism and physiological stress conditions. 3 credit hours. Spring 1985.

***BI320 Forensic Medicine**
Prerequisites: BI122, CH116, CJ215. Introduction to the medical-legal aspects of medicine emphasizing the relationship of the natural sciences. Injuries from various causes, effects of poisons, sex-offenses, autopsies and estimation of time of death will be covered. History of forensic medicine, its limitations and progress, odontology, malpractice and organ transplants will be discussed. 3 credit hours.

†BI325 Industrial Microbiology with Laboratory
Prerequisites: BI301 or BI302, CH115. Examination of the productive utilization of microorganisms in the areas of fermentation, antibiotics, single cell protein, biodeterioration, vitamins, bioassay, and others. Lesser emphasis on areas where microbes constitute a nuisance to industrial processes. Laboratory Fee. 4 credit hours.

†BI331 Animal Behavior
Prerequisites: BI121, P111. Behavioral patterns of animals studied on a comparative basis. Principles of ethology are discussed and related to genetics, psychology, ecology, evolution, physiology and social structure. 3 credit hours.

†BI333 Medical Microbiology with Laboratory
Prerequisites: BI301 or BI302, CH115. A study of the more common diseases caused by bacteria, fungi and viruses, including their etiology, transmission, laboratory diagnosis and control. Laboratory Fee. 4 credit hours.

†BI335 Food Microbiology with Laboratory
Prerequisites: BI301 or BI302, CH115. Microorganisms involved with the production of food products such as bread, cheeses, malt beverages, wine, sauerkraut. Food contamination and spoilage caused by microorganisms and methods of food preservation. Laboratory Fee. 4 credit hours.

***BI361-362 Biochemistry I and II with Laboratory**
Prerequisites: CH201, CH202, CH203 and CH204. A survey of biochemistry including a discussion of pH, buffers, water, bioenergetics, oxidative phosphorylation, enzymology, metabolic regulation, and the structure, function and metabolism of carbohydrates, proteins, lipids, nucleic acids, vitamins and cofactors. Laboratory exercises are primarily designed to concentrate on various experimental techniques including electrophoresis, chromatography, spectrophotometry, centrifugation and enzymology. Laboratory Fee. 8 credit hours. Fall 1984-Spring 1985.

***BI401 Embryology with Laboratory**
Origin and development of tissues, organs and organ systems during the embryonic and post embryonic stages. In the laboratory, the chick is grown and studied at various stages. Laboratory Fee. 4 credit hours. Spring 1986.

†BI501 Parasitology with Laboratory
Life history, physiology, morphology, reproductive cycle and economic importance of most common parasites of plants and animals. Spread and control of communicable and organic diseases. Laboratory Fee. 4 credit hours.

***BI502 Fresh Water and Marine Ecology**
Prerequisite: BI220. The ecology of lakes, rivers, estuaries and the oceans. Laboratory involves extensive field work. Laboratory Fee. 4 credit hours. Fall 1985.

***BI503 Pathology with Laboratory**
Prerequisite: BI303. Causes, symptoms, progress, effect and control of diseases of animals, primarily man. Laboratory observation of diseased cells, tissues and organs will be conducted partly at the University of New Haven and partly at St. Raphael's Hospital. Laboratory Fee. 4 credit hours.

†BI506 Sanitation and Food Science
Prerequisites: BI301 or BI302. Aspects of various types of sanitation are covered, especially as related to food use, processing and preservation. 3 credit hours.

***BI510 Environmental Health**
Prerequisites: BI122, CH103 or CH115. The emphasis is on the health effects of environmental and occupational pollutants and on the spread and control of communicable diseases. Toxicological and epidemiological techniques are discussed. 3 credit hours.

†BI515 Biophysics I with Laboratory
Prerequisites: CH116, BI362, PH104, PH106, M116. Principles and properties of large and small molecules in solutions, particularly in body fluids. Physical laws and theories of gases, liquids and solutions. Thermal chemistry and reaction rates as related to biological systems. Laboratory Fee. 4 credit hours.

†BI516 Biophysics II with Laboratory
Prerequisites: CH116, BI362, PH104, PH106, M116. Physical laws and theories as related to muscle, skeletal, sense organ, nerve and other physiological actions. Laboratory Fee. 4 credit hours.

†BI517-518 Biotechniques
Prerequisites: biology major, consent of the instructor. Clinical and research techniques used in the biological sciences. Advanced microscopy, photomicroscopy, cell and tissue culturation, clinical techniques and instrumental procedures. Laboratory Fee. 6 credit hours.

***BI519 Pharmacology with Laboratory**
Prerequisites: BI122, BI361 or CH302. Science of medicinals and other chemicals and their effects produced by use and abuse on living organisms, and the mechanisms whereby these effects are produced. Relation of structure to activity, methods of assay and metabolic pathways involved. Laboratory Fee. 4 credit hours.

***BI521 Toxicology with Laboratory**
Prerequisites: BI122, BI361 or CH202, CH211. The action of chemicals on living organisms. Relation of structure to activity, mechanisms of detoxification and reason for activity are studied. Methods of isolation, identification and characterization from tissues, toxic limits, methods of assay, types of antidotes. Laboratory Fee. 4 credit hours.

†BI524 Psychobiology
Prerequisites: PT11, BI122, CH 116. A study of the biological factors of behavior, with concepts drawn from numerous related disciplines such as physiology, pharmacology, ethnology, ecology, anthropology, psychology and biochemistry. 3 credit hours.

†BI561-562 Advanced Biochemistry
Prerequisite: BI362. An in-depth discussion of current topics in biochemistry and molecular biology. 6 credit hours.

BI590 Special Topics in Biology/Science
A course designed to discuss topics in biology or science which are of special or current interest. 1 to 4 credit hours.

BI591-592 Seminar
Prerequisite: biology major in junior or senior year. Meetings are held one hour weekly during which a research paper is reviewed by a member of the class. Each student, with his advisor, must select an article in a biological periodical from which is developed a 20-minute discourse on its content. 2 credit hours.

BI595-596 Laboratory Research
Prerequisites: biology major, consent of the department. Choice of a research topic, literature search, planning of experiments, experimentation and correlation of results in a written report, under the guidance of a department faculty member. Three hours of work per week required per credit hour. Laboratory Fee. 1-6 credit hours.

BI599 Independent Study
Prerequisites: biology major, consent of the department. Weekly conferences with advisor. Three hours of work per week required per credit hour. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. A written report of the work carried out is required. 1-3 credit hours, maximum of 6.

Business Law

LA101 Business Law I
Introductory overview of the development of common, statutory and constitutional law and the underlying social and economic policies thereof. The nature, functions and limitations of law and the legal system in the resolutionn of a controversy as it relates to business activity with particular attention to contract law. 3 credit hours.

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LA 102 Business Law II
Prerequisite: LA 101. Agencies, partnerships, corporations, employer/employee relationships, securities and anti-trust law. 3 credit hours.

LA 103 Business Law III
Prerequisite: LA 102. An advanced study of business law, structured especially for the needs of financial accounting majors. Course coverage will include bailments, property rights, the law of sales, and the law of negotiable instruments. Particular attention will be devoted to applicable provisions of the Uniform Commercial Code. A brief survey of the federal bankruptcy laws is also included. 3 credit hours.

Chemistry

The chemistry courses marked with an asterisk (*) may, at times, be scheduled in the evening. Chemistry courses marked with a dagger (†) are offered at the discretion of the department.

CH 103 Introduction to General Chemistry
An introductory course for students without a high school chemistry background. The course deals with inorganic chemistry, elements, compounds, balancing equations, stoichiometry, nomenclature, chemical bonding, the periodic table, and solutions. CH 104 is taken concurrently with CH 103. 3 credit hours.

CH 104 Introduction to General Chemistry Laboratory
To be taken with CH 103. Experiments include the measurement of physical properties, determination of percentage of composition and chemical formulas, reactions of representative elements, ionic reactions and the quantitation of acids and bases. Laboratory Fee. 1 credit hour.

***CH 107 Elementary Organic Chemistry**
Prerequisite: CH 103, CH 104 or CH 115, CH 117 or consent of the department. A one-semester introduction to one of the major fields of chemistry designed for students not majoring in chemistry. Nomenclature, structure and the principal reactions of aliphatic and aromatic organic chemistry will be studied. 3 credit hours.

***CH 108 Elementary Organic Chemistry Laboratory**
Prerequisite: CH 103, CH 104 or CH 115, CH 117 or consent of the instructor. A laboratory course designed to accompany CH 107. The principal operations of organic synthesis such as refluxing, distillation, filtration and crystallization, are studied and applied in a number of simple preparations. Laboratory Fee. 1 credit hour.

†CH 109 Consumer Chemistry
Prerequisite: CH 103 or consent of the instructor. This is a general course dealing with the physical and chemical properties of substances used daily such as paints, plastics, cosmetics, vitamins, antibiotics, hormones and poisonous substances. 3 credit hours.

***CH 110 Environmental Chemistry**
Prerequisite: CH 115, CH 117 or consent of the instructor. A survey of the principal environmental contaminants and pollutants of air and water, including heavy metals, radioactive particles, insecticides, detergents and others. Chemistry sufficient to understand the properties of these materials and possible routes to their control will be introduced. 3 credit hours.

CH 115 General Chemistry I
Prerequisite: CH 103 or one unit of high school chemistry or written qualifying exam. Brief review of fundamentals including stoichiometry and chemical bonding. Thermochemistry, electrochemistry, nuclear chemistry, gases, and introduction to inorganic chemistry and coordination compounds. CH 117 is taken concurrently with CH 115. 3 credit hours.

CH 116 General Chemistry II
Prerequisites: CH 115, CH 117. Rates of chemical reactions; chemical equilibria including pH, acid-base, common ion effect, buffers, and solubility products; thermodynamics; an introduction to organic and biochemistry. CH 118 is taken concurrently with CH 116. 3 credit hours.

CH 117 General Chemistry I Laboratory
To be taken with CH 115. Experiments include stoichiometry and basic physical chemistry experiments in thermochemistry and electrochemistry. Oxidation-reduction reactions, corrosion chemistry, and coordination chemistry. Laboratory Fee. 1 credit hour.

CH 118 General Chemistry II Laboratory
To be taken with CH 116. Experiments include the quantitative measurement of chemical rates and ionic equilibrium constants. The common ion effect, pH and buffers are investigated. The course concludes with an organic synthesis. Laboratory Fee. 1 credit hour.

†CH 120 Chemistry of Addicting and Hallucinogenic Drugs
Prerequisite: CH 103 or consent of the instructor. The properties, dosages, preparation and reactions of the addicting and hallucinogenic drugs. Alcohol, caffeine, nicotine, sedatives, stimulants, tranquilizers, LSD, mescaline, cannabis, narcotics and antidepressants. 3 credit hours.

CH201-202 Organic Chemistry I and II
Prerequisite: CH116, CH118. The common reactions of aliphatic and aromatic chemistry with emphasis on functional groups and reaction mechanisms. CH203 and CH204 are taken concurrently with CH201-202. 6 credit hours.

CH203-204 Organic Chemistry I and II Laboratory
To be taken with CH201-202. The techniques, reactions, and syntheses commonly employed in the organic chemistry laboratory are covered. Laboratory Fee. 2 credit hours.

***CH211 Quantitative Analysis with Laboratory**
Prerequisites: CH116, CH118. Theory and laboratory training in the preparation of solutions, volumetric, gravimetric, and spectrophotometric methods of analysis. Analysis of ores and ion-exchange chromatography. Laboratory Fee. 4 credit hours.

***CH221 Instrumental Methods of Analysis with Laboratory**
Prerequisites: CH211, CH201, CH203. The theory of various instrumental methods, including visible, ultraviolet and infrared spectroscopy, gas chromatography, potentiometry, mass spectrometry and nuclear magnetic resonance spectroscopy. Laboratory identification of compounds by the methods discussed in the lectures. Laboratory Fee. 4 credit hours.

†CH321-322 Plastics and Polymer Chemistry I and II
Prerequisites: CH116, CH118, CH 202, CH204. All phases of the plastics and polymers field, including the chemistry involved, methods of production, physical properties and the uses of specific polymers. 6 credit hours.

***CH331-332 Physical Chemistry I with Laboratory**
Prerequisites: CH202; CH204; PH 205; M203 (may be taken concurrently). Kinetic theory of gases, thermodynamics, phase equilibria, transport and surface phenomena, kinetics, quantum mechanics, atomic and molecular spectroscopy. Appropriate laboratory experiments are performed for each major topic. Laboratory Fee. 8 credit hours.

***CH351 Qualitative Organic Analysis with Laboratory**
Prerequisite: CH202, CH204, CH221. A one-semester laboratory course dealing with the systematic identification of organic compounds. Specific methods include wet analysis, derivatization, and physical analysis such as refractometry and molecular spectroscopy. Laboratory Fee. 4 credit hours.

CH411 Seminar I
Prerequisites: CH202, CH204, CH332. Acquaints the student with the chemical literature and its use. Assignments include library searches and the presentation of a short seminar on a special topic approved by the faculty. 1 credit hour.

CH412 Seminar II
Prerequisite: CH411. The student researches a specific current topic in chemical research or applied chemistry and presents a term paper and a formal full-length seminar to the faculty and students. 1 credit hour.

†CH441 Analytical Chemistry with Laboratory
Prerequisite: CH221. Corequisite: CH332. Application of instrumental methods to inorganic and organic methods of analysis not covered in CH221, including mass, ultraviolet and infrared spectrophotometry, chromatography and electrochemical analysis. Application of on-line digital computers to chemical analysis. 4 credit hours.

CH451 Thesis
Prerequisites: CH202, CH204, CH211, CH221, CH332. An original investigation in the laboratory or library under the guidance of a member of the department. A final thesis report is submitted. Laboratory Fee. 2 credit hours.

CH471 Industrial Chemistry
Prerequisites: CH202, CH211, CH221, CH332. A course to bridge the gap from the academic to the industrial world. Topics include material accounting, energy accounting, chemical transport, reactor design, process development and control. 3 credit hours.

***CH501 Advanced Organic Chemistry I**
Prerequisites: CH202, CH204. This course deals with topics such as chemical bonding and molecular structure, investigation of mechanism, nucleophilic substitution, electrophilic aromatic substitution, eliminations, symmetry controlled reactions, and Hammett plots. 3 credit hours.

***CH502 Advanced Organic Chemistry II**
Prerequisites: CH202, CH204. The course deals primarily with synthetic organic chemistry and includes oxidation, reduction, alkylation, addition, substitution, and multistep syntheses. 3 credit hours.

***CH521 Advanced Inorganic Chemistry I**
Prerequisite: CH331. Corequisite: CH332. The chemistry of coordination compounds: molecular and electronic structures, stereochemistry, valence bond, ligand field, and molecular orbital theories, thermal and photochemical reactions and mechanisms. 3 credit hours.

***CH522 Advanced Inorganic Chemistry II**
Prerequisite: CH331. Corequisite: CH332. The chemistry of the main group elements, lanthanides, and actinides: bonding, structure and properties, synthesis, acid-base theories, crystal structures, cage and cluster compounds. 3 credit hours.

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CH523-524 Advanced Inorganic Chemistry I and II Laboratory
Corequisites: CH521, CH522. Experiments are performed in conjunction with material presented in CH521 and CH522. Included are inorganic syntheses, resolution of diastereomers, conductance measurements, determination and interpretation of infrared, ultraviolet, mass, and nuclear magnetic resonance spectra of inorganic compounds, and photochemistry. Laboratory Fee. 2 credit hours.

†CH533 Advanced Physical Chemistry
Prerequisite: CH332. Emphasis on the fundamentals of quantum mechanics, statistical mechanics, molecular bonding theory and spectroscopy. 3 credit hours.

†CH561 Chemical Spectroscopy
Prerequisite: CH332. Introduction to the elementary theory with emphasis on techniques and interpretation of data obtained in applications of infrared, Raman, visible, ultraviolet, nuclear quadrupole, electron spin and nuclear magnetic resonance spectroscopy to the solution of chemical problems. 3 credit hours.

CH599 Independent Study
Prerequisite: instructor's consent. Opportunity for the student under the direction of a faculty member to explore an area of interest. This course may be used to do preliminary work on the topic studied for Thesis (CH451). 1-3 credit hours.

Chemical Engineering*

CM201 Fundamentals of Chemical Engineering I
Prerequisites: CH116, M117, PH150. An introduction to the profession of chemical engineering and the application of fundamental chemical, physical, and mathematical concepts to the solution of chemical engineering problems. Material balances and principles of stoichiometry are used to solve problems encountered in the field. 3 credit hours.

CM202 Fundamentals of Chemical Engineering II
Prerequisite: CM201. A continuation of CM201 with emphasis on the use of energy balances for both non-reactive and reactive processes. Combined material and energy balances are used in solving a variety of chemical engineering problems. 3 credit hours.

CM311 Chemical Engineering Thermodynamics
Prerequisite: CH331 or ME301. Applications of the first and second laws of thermodynamics to batch and flow processes important in chemical engineering for homogeneous and heterogeneous systems, mixtures and pure materials. Topics include phase and chemical equilibria, chemical reactions, thermochemistry, thermodynamic properties, miscibility, potential functions, molecular theory, and statistical thermodynamics. 3 credit hours.

CM321 Reaction Kinetics and Reactor Design
Prerequisites: CM311, M204. Homogeneous and heterogeneous catalyzed and non-catalyzed reaction kinetics for flow and batch chemical reactors. Application of kinetic data to both isothermal and nonisothermal reactor design. This course is intended for both chemists and chemical engineers. 3 credit hours.

CM401 Mass Transfer Operations
Prerequisites: CM311, ME404, ME421. Fundamentals of mass transfer and diffusion applied to distillation, extraction, gas absorption, humidification, drying, and other unit operations. Theory and application of phase equilibria and stage operations for binary and multicomponent systems. Use of equilibrium stage and transfer unit concepts in design of mass transfer processes. 3 credit hours.

CM411 Chemical Engineering Laboratory
Prerequisites: ME404, ME421; Corequisite: CM401. Laboratory experiments in fluid flow, heat and mass transfer, and chemical engineering unit operations. Interpretation and correlation of laboratory data and report writing are emphasized. 2 credit hours.

CM421 Plant and Process Design
Prerequisites: CM401, IE204 and senior standing. Design of chemical plants and process equipment applying the principles of unit operations and processes, thermodynamics, kinetics, and economics. Emphasis is placed on process flow sheet development, equipment selection, process operating conditions, cost estimation, economic analysis, design strategy and optimization. 3 credit hours.

CM431 Process Dynamics and Control
Prerequisites: EE211, M204. Fundamental principles of chemical process dynamics used in the measurement and control of process variables such as temperature, pressure, and flow rate. Linear and non-linear control theory and stability analaysis techniques such as root locus and frequency response are presented. 3 credit hours.

*Program currently under review by the Connecticut State Board of Higher Education. (4/84)

Civil Engineering

CE201 Statics
Prerequisites: PH150; M118 (may be taken concurrently). Composition and resolution of forces in two and three dimensions. Equilibrium of forces in stationary systems. Analysis of trusses. Centroids and second moments of areas, distributed forces and friction. 3 credit hours.

CE202 Strength of Materials I
Prerequisite: CE201. Elastic behavior of structural elements under axial, flexural and torsional loading. Shear and binding moment diagrams. Stress in and deformation of members, including beams. Lectures supplemented with laboratory demonstrations. 3 credit hours.

CE203 Elementary Surveying
Theory and practice of surveying measurements using tape, level and transit. Field practice in traverse surveys and leveling. Traverse adjustment and area computations. Adjustment of instruments, error analysis. Laboratory Fee. 3 credit hours.

CE301 Transportation Engineering
A study of planning, design and construction of transportation systems including highways, airports, railroads, rapid transit systems and waterways. 3 credit hours.

CE302 Building Construction
Introduction to the legal, economic, architectural, structural, mechanical and electrical aspects of building construction. Principles of site planning, drawing and specification preparation and cost estimating. 3 credit hours.

CE304 Soil Mechanics
Prerequisites: M203, CE202. Geological process of soil formation. Soil classifications. Physical properties are related to the principles underlying the potential behavior of soils subjected to various loading conditions. Methods of subsurface exploration. Laboratory demonstrations. 3 credit hours.

CE305 Highway Engineering
Prerequisite: CE301 or instructor's consent. Highway economics and financing. Study of highway planning, geometric design and capacity. Pavement and drainage design. 3 credit hours.

CE306 Hydraulics
Prerequisite: ME204. The mechanics of fluids and fluid flow. Fluid statics, laminar and turbulent flow. Impulse and momentum. Flow in pipes and open channels. Orifices and weirs. 3 credit hours.

CE312 Structural Analysis
Prerequisites: CE202; IE102; ME204 (may be taken concurrently). Basic structural engineering topics on the analysis of design of structures. Topics include load criteria and influence lines; force and deflection analysis of beams and trusses; analysis of indeterminate structures by approximate methods, superposition and moment distribution. Framing systems of existing structures are studied. Computer Use Fee. 3 credit hours.

CE315 Environmental Engineering and Sanitation
Introduction to hydrology; population and water demand projections; water and wastewater transport systems. Problems concerning public health, water and wastewater treatment, solid waste disposal, air pollution, and private water supply and sanitary disposal systems. 3 credit hours.

CE316 Code Administration
Study of codes and regulations prepared and enacted for the public and employee safety along with the codes and regulations implemented to develop a uniform and balanced land development and usage program. Health codes, labor laws, zoning regulations, planning regulations and wetlands regulations are discussed. 3 credit hours.

CE317 Structural Design Fundamentals
Prerequisites: CE312, IE102. Fundamentals of structural behavior of members, connections and structural systems of steel and concrete. Effect on members of a variety of loading conditions varying from dead load through overloads producing failure. Computer Use Fee. 3 credit hours.

CE318 Route Surveying
Prerequisite: CE203. A continuation of elementary surveying covering principles of route surveying, stadia surveys, triangulation, trilateration, practical astronomy, aerial photography, adjustment of instruments. Field problems related to classwork and computer application to surveying problems. Computer Use Fee. 3 credit hours.

CE320 Civil Engineering Practice
Prerequisite: second semester junior or first semester senior status. Students are exposed to actual engineering projects by visiting an engineering office during the semester on a regular schedule. 1 credit hour.

CE321 Wood Engineering
Prerequisite: CE202. Study of the growth and structure of wood and their influence on strength and durability, preservation and fire protection. The analysis and design of structural members of wood including beams, columns, and trusses; connections; glulam and plywood members. The design of wood structures. 3 credit hours.

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CE322 Masonry Engineering
Prerequisite: CE202. The design and analysis of brick and concrete masonry non-reinforced and reinforced structures. Strength, thermal, fire and sound characteristics, testing and specifications. 3 credit hours.

CE323 Civil Engineering Lab I
Prerequisite: CE312 (may be taken concurrently). Experiments covering mechanics and structural engineering. The response of metals, concrete and wood to different loading conditions will be examined. Laboratory instrumentation will be studied. Laboratory procedures, data collection, interpretation and presentation will be emphasized. 2 credit hours with 3-credit hour charge.

CE324 Civil Engineering Lab II
Prerequisites: CE304, (may be taken concurrently), CE306, CE315. Experiments and testing in the areas of soil mechanics, hydraulics and environmental engineering. Laboratory procedures, data collection and interpretation and presentation of data will be emphasized. 2 credit hours with 3-credit hour charge.

CE325 Project Planning and Scheduling
Application of network analogy, critical path method, program evaluation review technique, precedence diagrams and analog charts to planning, scheduling, and controlling construction. Computer applications. 3 credit hours.

CE401 Foundation Design and Construction
Prerequisite: CE304 or instructor's consent. Application of soil mechanics to foundation design, stability, settlement. Selection of foundation type—shallow footings, deep foundations, pile foundations, mat foundations. Subsurface exploration. 3 credit hours.

CE402 Water Resources Engineering
Prerequisites: CE306 (may be taken concurrently), CE315. Study of principles of water resources engineering including surface and ground water hydrology. Design of water supply, flood control and hydroelectric reservoirs. Hydraulics and design of water supply distribution and drainage collection systems including pump and turbine design. Principles of probability concepts in the design of hydraulic structures. General review of water and pollution control laws. 3 credit hours.

CE403 City Planning
Engineering, social, economic, political and legal aspects of city planning. Emphasis placed on case studies of communities in Connecticut Zoning. Principles and policies of redevelopment. 3 credit hours.

CE404 Sanitary Engineering
Prerequisites: CE306 (may be taken concurrently), CE315. Study of physical, chemical and biological aspects of water quality and pollution control. Study of unit processes and operations of water and waste water treatment including industrial waste and sludge processing. Design of water treatment and sewage treatment systems including sludge treatment and incineration. 3 credit hours.

CE405 Indeterminate Structures
Prerequisites: ME307 or CE312; IE102, ME204. The analysis of statically indeterminate structures. Topics include approximate methods, moment distribution, conjugate beam, energy methods, influence lines and an introduction to matrix methods. Computer Use Fee. 3 credit hours.

CE407 Contracts and Specifications
Prerequisite: senior status, or permission of instructor. Principles of contract formation, execution and termination. Study of specifications and practice in their preparation. Other legal matters of importance to engineers. 3 credit hours.

CE408 Steel Design and Construction
Prerequisite: CE317. Analysis, design and construction of steel structures. Topics include tension, compression and flexural members; connections; members subjected to torsion; beam-columns; fabrication, erection and shop practice. 3 credit hours.

CE409 Concrete Design and Construction
Prerequisite: CE317. Analysis and design of reinforced concrete beams, columns, slabs, footings, retaining walls. Basic principles of prestressed and precast concrete. Fundamentals of engineering drawings. 3 credit hours.

CE410 Land Surveying
Prerequisite: consent of instructor. A study of boundary control and legal aspects of land surveying, including deed research, evidence of boundary location, deed description and riparian rights. Theory of measurement and errors, position precision, plane coordinate systems. 3 credit hours.

CE501 Senior Project
Prerequisite: senior status. Supervised individual or group project. The project may be the preparation of a set of contract documents for the construction of a civil engineering facility, research work with a report, or a project approved by the faculty advisor. Computer Use Fee. 3 credit hours.

CE599 Independent Study
Prerequisites: consent of instructor and chairman of department. Opportunity for the student to explore an area of interest under the direction of a faculty member. Course must be initiated by the student, and have the approval of the faculty advisor and chairman. 1-3 credit hours.

Communication

CO100 Human Communication
The basic course in communication. Objectives are to create within each student an awareness of the omnipresence of communication and the problems surrounding the human communication process. Recommended for all UNH students, regardless of major field of study. 3 credit hours.

CO101 Fundamentals of Mass Communication
Prerequisite: CO100. An introduction to the mass media of newspapers, film, magazines, radio, television, trade publications and public relations. Course emphasizes media's impact upon society. 3 credit hours.

CO103 Audio in Media
Concerned with sound as used in radio, television and film. The course entails lectures, demonstration, and lab practice of sound production and transmission. Laboratory Fee. 3 credit hours.

CO200 Theories of Group Communication
Theoretical aspects of communication which affect the accomplishment of group tasks, and techniques of observation of group processes, particularly within the framework of media production crews. 3 credit hours.

CO203 Radio Production
Prerequisite: CO103. Theory and practice of techniques involved in the function and operation of a radio station. Microphone techniques, engineering operations, transmitter readings, logging and programming will be included. Laboratory Fee. 3 credit hours.

CO208 Introduction to Broadcasting
General survey and background of broadcasting, cable, pay and premium TV services and new technologies. Current changes, law, regulation, financing and public input are examined. Emphasis is placed on current status and future potential of these industries. 3 credit hours.

CO212 Television Production I
Prerequisites: CO103, CO208. Introduction to the mechanics, techniques, and aesthetic elements of television production. This course provides the basic grounding in the art and craft of the medium. Laboratory Fee. 3 credit hours.

CO214 Elements of Film
Prerequisite: CO101 or permission of the instructor. Stresses the understanding of film as a creative form of communication. Student is introduced to basic techniques of motion picture production through lectures, audio-visual activity, and small group involvement. Laboratory Fee. 3 credit hours.

CO220 Film Production I
Prerequisites: CO103, CO214. Involves the transformation of an original idea into film: Initial analysis, proposed treatment plan, sequencing, film scripting, pre-production planning, nature of the production process. A short film is produced through team effort. Laboratory Fee. 3 credit hours.

CO300 Persuasive Communication
An examination of the theories of persuasive communication including the influence and effect of communication on the rhetoric of politics, religion, advertising, etc. 3 credit hours.

CO203 Social Impact of Media
Prerequisite: CO101. Examines such problems as regulatory control of the media, law and ethics, and the behavioral aspects of mass and interpersonal communication. Students examine the variety of media writing and commence writing their own media messages. 3 credit hours.

CO307 Writing for Television and Radio
Prerequisite: CO208. A study of drills and exercises in writing television and radio news, drama, public service announcements, and documentaries. Emphasis is placed on first-hand practical experience assignments and criticism of completed copy. 3 credit hours.

CO308 Broadcast Journalism
Prerequisite: CO307. Entails practice in newsgathering, editing, writing, and use of news services and sources. Creating documentary and special event programs through film for television news, on-the-spot film, and video-tape reporting are included. 3 credit hours.

CO312 Televison Production II
Prerequisite: CO212. An intermediate course designed to provide the student with the opportunity to coordinate the many areas of TV production. Video tape and live production techniques are employed. Laboratory Fee. 3 credit hours.

CO317 Advanced Writing for Radio
Planning and writing longer forms of scripts, emphasizing documentary and dramatic writing for radio production. 3 credit hours.

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CO320 Film Production II
Prerequisite: CO220. The creative process involved in translating advertising copy to film based upon advertising objectives and consumer motivation, appeals, and behavior. Involves production of filmed "spots" by team efforts. Laboratory Fee. 3 credit hours.

CO327 Dramatic Scriptwriting for Film and Television
Dramatic scriptwriting for film and television will concentrate on dramatic scripts including: how to work a treatment, write dialogue, include camera shots. 3 credit hours.

CO335 Media Performance
Theory and application of performance techniques. Projects in performance for radio, television and film. 3 credit hours.

CO340 The History of Film
A survey of the historical development of the film medium consisting of lectures, discussions and the screening of films which demonstrate the interrelationships between the historical development and the establishment of the film medium as a powerful communicative art form. 3 credit hours.

CO350 Non-Commercial Television
The theory and history of non-commercial television and the organization of a public television station. The function and contribution of the various organizations will be studied in their relationship to the public television sector. The legal restraints and funding structure of public television will be included. The future of public television vis-a-vis cable television and satellite communications will be included. 3 credit hours.

CO399 Media Campaigns
This course will examine the role played by the mass media in political campaigning. Students will look at the historical perspectives and study current trends. FCC laws regarding advertising, lowest unit cost, section 315 and other regulations will be examined. Students will view videotapes of past political media campaign examples and will have the opportunity to participate in and produce hypothetical political media campaigns. 3 credit hours.

CO402 Internship
An internship program for students who qualify and would like an in-field experience at local radio stations, television stations, advertising agencies, etc. 3 credit hours.

CO410 Management Communication Seminar
Open to all upper division students, regardless of major. Involves structure and function of communication in organizations. Practice in understanding and managing interpersonal differences. Emphasizes concepts and principles needed for effective management of organizational communication processes. 3 credit hours.

CO412 Advanced Television Production
Prerequisite: CO312. The perfection of techniques acquired in CO215 and CO216. Essentials of budgeting, marketing, and regulatory policies and rules. Production teams are formed to produce sophisticated local television programs under close supervision. 3 credit hours.

CO415 Broadcast Management
Prerequisite: CO208. Involves the administrative and personnel problems of television and radio studio management; broadcast engineering; local sales; continuity; and programming. Discussions will include scheduling and the development of facilities. 3 credit hours.

CO440-454 Special Topics
Special topics in communication which are of special interest or current interest. 3 credit hours.

CO599 Independent Study in Communication
Prerequisite: consent of faculty member and chairman of department. 3-6 hours are usually reserved for a senior project-paper in communication; student may take 1-3 credit hours of CO599 per semester with a maximum of 6. Independent study credits earned in other departments are applied toward the maximum of 6 in communication. Opportunity for the student under the direction of a faculty member to explore an area of interest. 1-3 credit hours.

Criminal Justice

CJ100-101 Introduction to Criminal Justice I & II
Survey of criminal justice system with emphasis upon prosecution, corrections and societal reaction to offenders. Retribution, rehabilitation, deterrence, and incapacitation serve as generic frames of reference and theoretical points of departure for analyzing the dispositional and correctional processes. Introduction to Criminal Justice I focuses on the first half of the process—from prosecution through the courts; Introduction to Criminal Justice II completes the cycle from the courts through the correctional system. 3 credit hours.

CJ102 Criminal Law
The scope, purpose and definitions of substantive criminal law: criminal liability, major elements of statutory and common law offenses (with some reference to the Connecticut Penal Code) and significant defenses. 3 credit hours.

CJ 105 Introduction to Security
A general survey of the major historical, legal and practical developments and problems of security. The course will stress the components, organization and objectives of security, the trend toward professionalization, the role of security in the public and private sectors and its relationship to management. 3 credit hours.

CJ 112 Security Methods
The course will review the procedures and techniques of modern security methods. It will focus on physical security, procedural controls, human components, security surveys, preventive methods, investigative methods, and technological developments. The emphasis will be on planning, organization, implementation, and system development. 3 credit hours.

CJ 201 Principles of Criminal Investigation
An introduction to criminal investigation in the field. Conducting the crime scene search, interview of witness, interrogation of suspects, methods of surveillance and the special techniques employed in particular kinds of investigation. 3 credit hours.

CJ 203 Security Administration
This course will present an overview of security systems found in retail, industrial and governmental agencies, the legal framework for security operations, and the administrative and procedural processes in security management. 3 credit hours.

CJ 204 Forensic Photography with Laboratory
An introduction to basic techniques, material and other aspects of crime scene photographs. Theory and practice of photographic image formation and recordings. Laboratory exercises with emphasis on homicide, sex offenses, arson and accident photograph techniques. Laboratory Fee. 3 credit hours.

CJ 205 Interpersonal Relations
Prerequisite: P111. Theories, conceptual models and research related to interpersonal relations. Topics include reciprocal theory, attitudes and labeling theory. 3 credit hours.

CJ 209 Correctional Treatment Programs
Prerequisites: CJ100, CJ101. Various treatment modalities employed in the rehabilitation of offenders. Field visits to various correctional treatment facilities such as half-way houses and community-based treatment programs. 3 credit hours.

CJ 215 Introduction to Forensic Science
Prerequisite: CJ201. A classroom lecture/discussion session and a laboratory period. Topics include the recognition, identification, individualization and evaluation of physical evidence such as hairs, fibers, chemicals, narcotics, blood, semen, glass, soil, fingerprints, documents, firearms and tool marks. Laboratory Fee. 3 credit hours.

CJ 217 Criminal Procedure I
Prerequisites: CJ100, CJ101, CJ 102. An inquiry into the nature and scope of the U.S. Constitution as it relates to criminal procedures. Areas discussed include the law of search and seizure arrests, confessions and identification. 3 credit hours.

CJ 218 Criminal Procedure II and Evidence
Prerequisites: CJ100, CJ101, CJ 102, CJ217. Legal doctrines, employed in controlling the successive stages of the criminal process. Rules of law related to wiretapping and lineups, pretrial decision making, juvenile justice and trial. 3 credit hours.

CJ 220 Legal Issues in Corrections
Prerequisites: CJ100, CJ101, CJ217, junior status. An examination of the legal foundations of correctional practice and a review of recent judicial decisions which are altering the correctional environment. An analysis of the factors and forces which are creating a climate of significant reform in corrections. 3 credit hours.

CJ 221 Juvenile Justice System
Prerequisites: CJ100, CJ101, P111, SO113. An analysis of stages and decisions made at critical junctures of the juvenile justice process. Topics include an analysis of Supreme Court treatment of juvenile justice issues, and the ability of the juvenile justice system to respond to juvenile crime. The focus of the course is on the processing of juveniles through the system, and the special problems unique to juvenile justice. 3 credit hours.

CJ 226 Industrial Security
Prerequisite: CJ105. Concepts of security as it integrates with industrial management systems will be presented along with industrial security requirements and standards, alarms and surveillance devices, animate security approaches, costing, planning and engineering. Principles of safety practices and regulations will be covered, as well as fire prevention, property conservation, occupational hazards and personal safeguards. 3 credit hours.

CJ 227 Fingerprints with Laboratory
Prerequisites: CJ201, CJ215. This course will study the genetics and mathematical theory relating to fingerprints, chemical and physical methods used in developing latent fingerprints, and major systems of fingerprint classification. Laboratory Fee. 3 credit hours.

COURSES

CJ 300 History of Criminal Justice
Prerequisites: CJ 100, CJ 101. This course is intended to trace the development of the major C.J. elements including police, prisons, probation and parole. Significant historical events and philosophical postulates as they pertain to this development are explored. 3 credit hours.

CJ 301 Group Dynamics in Criminal Justice
Prerequisites: CJ 205, CJ 206, P 111. An analysis of theory and applied methods in the area of group process. Focus on both individual roles and group development as they relate to criminal justice issues. Experiential exercises are included. 3 credit hours.

CJ 303-304 Forensic Science Laboratory I and II
Prerequisite: CJ 215. Specific examination of topics and laboratory testing procedures introduced in CJ 215. In the classroom, laboratory procedures are outlined and discussed. Identification and individualization of evidence; casting of hairs and fibers for microscopic identification; electrophoretic separation of blood enzymes. Laboratory Fee. 6 credit hours.

CJ 306 Security Problems Seminar
Prerequisite: CJ 105, CJ 203. An analysis of special problem areas including college and university campuses, hospitals, hotel/motels, etc. Also, special problems concerning computer protection, bank security, executive personnel protection, credit cards, case law and legal aspects, control of proprietary information and white collar crime. 3 credit hours.

CJ 310 Criminal Justice Institutions
Prerequisite: CJ 300. This course will examine the societal and psychological implications of various types of institutions. This will include both social and total institutions and will examine their similarities and dissimilarities with particular emphasis on their implications for Criminal Justice. 3 credit hours.

CJ 311 Criminology
Prerequisites: CJ 100, CJ 101, P 111, SO 113. An examination of principles and concepts of criminal behavior; criminological theory; the nature, extent and distribution of crime; legal and societal reaction to crime. Same course as SO 311. 3 credit hours.

CJ 400 Criminal Justice Problems Seminar
Prerequisites: CJ 100, CJ 101, CJ 300. An examination of theoretical and philosophical issues affecting the administration of justice: the problems of reconciling legal and theoretical ideals in various sectors of the criminal justice system with the realities of practice. 3 credit hours.

CJ 402 Police in Society
Prerequisites: CJ 100, CJ 101, CJ 300. This course will acquaint the student with the major developments and trends of policing in a free society. Emphasis will be placed on American police and the role of the police in a democracy. Further emphasis will be placed on the examination of the interactions between the police and the communities they serve. 3 credit hours.

CJ 403 Advanced Forensic Science I
An in-depth examination of blood grouping procedures for red cell antigens, isoenzymes and serum proteins, identification and typing of body fluids and their stains; collection, processing and handling of biological materials in casework. Laboratory Fee. 4 credit hours.

CJ 404 Advanced Forensic Science II
An in-depth examination of several subjects in modern criminalistics, including hair and fiber analysis and comparison, arson accelerants and explosives residues, glass comparisons and forensic chemistry. Laboratory Fee. 4 credit hours.

CJ 405-407 Seminar in Criminal Justice
Prerequisite: senior status. An intensive analysis of variable topics of critical relevance in the administration of justice: a seminar exposing the student to a concentrated learning experience conducive to acquiring special expertise in a special academic area. 3 credit hours.

CJ 408 Correctional Counseling I
Prerequisites: P 111, P 336, CJ 205, CJ 209, CJ 301. This course is designed to provide students with the knowledge of basic counseling and evaluation theory, methods, and research as applied to a correctional setting. 3 credit hours.

CJ 409 Correctional Counseling II
Prerequisite: CJ 408. Applications of correctional counseling theory and methods. Includes interviewing techniques and case intervention strategies with offenders. Focuses predominantly on one-to-one counseling situations. 3 credit hours.

CJ 415 Document and Firearms Examination
Prerequisites: CJ 201, CJ 215. A study of the methods and techniques in document and firearms examination. Includes an understanding of the chemical, physical and microscopic principles through laboratory exercises. 3 credit hours.

CJ 416 Seminar in Forensic Science
Prerequisites: CJ 201, CJ 215. An examination and evaluation of current issues in the law enforcement science field. The course is also designed to aid in understanding how various physical evidence can be utilized as an investigative tool. And, a review of modern analytical techniques and their application in law enforcement science. 3 credit hours.

CJ 498 Research Project
Prerequisite: consent of the department chairman. The student carries out an original research project in a criminal justice setting and reports the findings. 3 credit hours.

CJ 501 Criminal Justice Internship
Prerequisite: consent of the department chairman. This program provides monitored field experience with selected federal, state or local criminal justice agencies or forensic science laboratories subject to academic guidance and review. 3 credit hours.

CJ 599 Independent Study
Prerequisite: consent of the department chairman. An opportunity for the student, under the direction of a faculty member, to explore and acquire competence in a special area of interest. 1-3 credit hours.

Dietetics and Institutional Management

Courses offered other than the usual Fall-Spring schedule are noted.

DI 214 Food Service Management Systems I
Principles of menu planning for hotels, restaurants, clubs, airlines and institutional service, with emphasis on history and development, types and uses, format and production, and pricing structure. 3 credit hours.

DI 216 Food Service Management Systems II
Basic principles food sanitation, work safety, policy and procedures needed to effectively operate a volume food production kitchen. The causes and prevention of food poisoning are stressed. Included are the aesthetic, moral and legal responsibilities involved in presenting sanitary food to patrons as well as the profit and loss factors. Emphasis is placed on the current problems confronting the industry with recent food developments as they relate to sanitation. 3 credit hours.

DI 218 Food Service Management Systems III
Development of the labor union movement in the United States, with emphasis on unions active in the hospitality industry. The government's role in union-management relationship is explored. Case studies are used to analyze the intricacies of collective bargaining, grievance procedures, mediation and conciliation. 3 credit hours.

DI 220 Food Service Management Systems IV
The feasibility, planning, development and construction of the physical plant of the hotel and food service facilities are considered and analyzed. Investigation of management problems associated with the mechanical systems of the physical plant. In addition, systems such as elevators, fire equipment, swimming pools, communications, data processing, laundry and housekeeping equipment are discussed. 3 credit hours.

DI 222 Dietetic Seminar
Special topics relating to food service management in institutions and community nutrition care programs. After selecting a topic on contemporary problems, the student will review the literature, prepare a bibliography, and make an oral presentation before the seminar class. 1 credit hour. (Spring)

DI 300 Special Topics

The dietetics and institutional management fields are constantly changing due to new technology and avenues for their expansion and management. The purpose of these courses is to select special topics that are not covered in existing courses and expose students to recent developments and future research in the following specific courses. 3 credit hours. Selected courses will be offered in the fall, spring and summer semesters.

DI 300 Community Nutrition
Application of community nutrition strategies to health care delivery systems and the management of such systems will be analyzed.

DI 300 Wellness Program
The use of nutrition as a preventive medicine to avoid the incidences of hypertension, cardiovascular disease, diabetes and stress, will be studied.

DI 300 Healthful Foods
The relationship of food to health is explored with emphasis placed on developing the necessary skills needed to make healthful food choices, using current research on food and nutrition as guidelines.

DI 300 Fundamentals of Food
Fundamental course in food, designed to study the scientific, economic, social and psychological principles involved in food preparation, preservation, storage and spoilage. Laboratory Fee.

DI 300 Diets Throughout the Life Cycles
A study of the life cycles from infancy to gerontology, and the dietary implications to these changes in the body will be explored. Emphasis will be placed on current research in the field of nutrition.

DI 300 Modification of Diets
Normal diets will be written and then modified to accommodate the requirements of therapeutic diets to specific disease states.

COURSES

DI300 Special Diets
The examination and selection of selected diets for individuals will be emphasized. Nutritive content, RDA requirements, and dietary supplements as they relate to the institutional food setting will be the focus of the course.

DI300 Nutritional Assessment of Patient
. Laboratory values and anthropometric measurements will be explored with their practical applications towards the nutritional assessment of patients.

DI300 Nutritional Analysis of Diets
Hands-on experience of analyzing diets, using food compositional tables for calories, protein, fat, carbohydrate, vitamins and minerals. The effects of cooking, food processing and food enrichment on the nutritional value will be studied.

DI300 Computers and Dietetics
Prerequisite: DI300 Nutritional Anaysis of Diets. Using a nutrient data base, diets and recipes will be analyzed on a microcomputer for their nutritive value and appropriate modifications made for therapeutic diets.

DI300 Computers and Food Service
Application of microcomputer processes for food purchasing and an inventory and retrieval system, will be utilized.

DI300 Computers and Food Cost Control
Application of a spreadsheet for use on a microcomputer will be used for food cost control and recipe analysis.

DI300 Hospital Food Service Administration
Lectures present an overview of health care food service: organizations; significance to hospital and community; management procedures and controls; role of the professional dietitian; food production; sanitation; career opportunities; facilities ' layout and equipment, and utilization of food production systems. A field trip to inspect hospital food service is included.

DI598 In-process Registration for Cooperative Education Program (Co-op)
Permission of the department co-op advisor required. The advisor works closely with the student in designing a plan of study that integrates full-time work experience and academic study within the student's academic major and area of interest. (Offered fall, intersession, spring and summer semesters.) Non-credit, but may be used with other appropriate credit courses.

DI599 Independent Study
Permissipon of the department chairman required. Independent research projects or other approved phases of independent study. 3 credit hours.

Economics

EC100 Economic History of the U.S.
Development of American economic interactions in the various stages of agriculture, trade, industry, finance and labor. Change of economic practices and institutions, particularly in business, banking and labor as well as the changing role of government. 3 credit hours.

EC133 Principles of Economics I
Foundations of economic analysis, including economic progress, resources, technology, private enterprise, profits and the price system. Macroeconomics including national income, employment and economic growth. Price levels, money and banking, the Federal Reserve System, theory of income, employment and prices, business cycles and problems of monetary, fiscal and stabilization policy. 3 credit hours.

EC134 Principles of Economics II
Prerequisite: EC133. Microeconomics including markets and market structure and the allocation of resources. The distribution of income, the public economy, the international economy and selected economic problems. 3 credit hours.

EC310 Principles of Economic Geography
Distribution of resources, industries and population in relation to physical, economic and technological factors. Principles of economic location and regional development. 3 credit hours.

EC311 Government Regulation of Business
Prerequisites: EC133, EC134. An appraisal of public policy toward transportation, trusts, monopolies, public utilities and other forms of government regulation of economic activity. 3 credit hours.

EC312 Contemporary Economic Problems
The course concerns selected current economic problems; inflation, unemployment, poverty in an affluent society, economic issues in health services, the economics of higher education, and the problems of the cities and population. The purpose is to examine and to explore policies to cure these problems. 3 credit hours.

EC314 Public Finance and Budgeting
Prerequisites: EC133, EC134. A general survey of government finance at the federal, state, and local levels, including government expenditures, principles of taxation, public borrowing, debt management, and fiscal policy for economic stabilization. 3 credit hours.

EC315 Economics of Crime
The application of basic economic concepts to such topics as the economic costs of crime, the costs of preventing crime, white collar crime, crimes against property, victimless crimes. 3 credit hours.

EC320 Mathematical Methods in Economics
Prerequisites: M115, M116; or M115, M127; or QA118, QA128. Applications of various mathematical concepts and techniques in macroeconomic and microeconomic analysis. Special emphasis on the design and interpretation of mathematical models of economic phenomena. 3 credit hours.

EC336 Money and Banking
Prerequisites: EC133, EC134. Nature and function of money, commercial banking system, Federal Reserve System and the Treasury, monetary theory, financial institutions, international financial relationships, history of money and monetary policy in the United States and current problems of monetary policy. 3 credit hours.

EC340 Microeconomic Analysis
Prerequisites: EC133, EC134. Study of commodity and factor pricing, theory of production, cost theory, market structures under perfect and imperfect market conditions. 3 credit hours.

EC341 Macroeconomic Analysis
Prerequisites: EC133, EC134, A 111. An investigation of the makeup of the national income and an analysis of the factors that enter into its determination. The roles of consumption, investment, government finance and money influencing national income and output, employment, the price level and rate of growth; policies for economic stability and growth. 3 credit hours.

EC342 International Economics
Prerequisites: EC133, EC134. The role, importance and currents of international commerce; the balance of international payments; foreign exchange and international finance; international trade theory; problems of payments adjustment; trade restrictions; economic development and foreign aid. 3 credit hours.

EC345 Comparative Economic Systems
Prerequisites: EC133, EC134. The course examines contemporary economic systems, ranging from those that rely heavily upon market mechanism to those that rely on central planning in decision making. A selected country for each system is taken into consideration. 3 credit hours.

EC350 Economics of Labor Relations
Prerequisites: EC133, EC134. History of the union movement in the United States, union structure and government, problems of collective bargaining, economics of the labor market, wage theories, unemployment, governmental policy and control and problems of employment security. 3 credit hours.

EC410 Econometrics
Prerequisite: EC320. The application of modern statistical methods to economic theory and the testing of hypotheses. The construction of econometric models and the estimation of parameters by various methods. 3 credit hours.

EC420 Applied Economic Analysis
Prerequisites: EC133, EC134. A study of applied economics involves application of the tools of economic analysis to the real-life problems of business firms, government agencies and other organizations. 3 credit hours.

EC440 Economic Development
Prerequisites: EC133, EC134. Economic problems of developing countries and the policies necessary to induce growth. Individual projects required. 3 credit hours.

EC442 Economic Thought
Prerequisites: EC133, EC134. The development of economic doctrine from mercantilism and Adam Smith to Marx and to the thinking of modern-day theorists, such as Friedman, Galbraith, Schumpeter, and Debreu. Emphasis upon the main currents of thought with the applicability to present day problems. Individual study and reporting. 3 credit hours.

EC450 Thesis
A written report on a research project. No class meetings, but periodic conferences with the thesis supervisor. 3 credit hours.

EC599 Independent Study
Prerequisite: consent of the department chairman. Independent research projects or other approved forms of independent study. 3 credit hours.

COURSES

Electrical Engineering

EE201 Basic Circuit Analysis I
Prerequisites: M117, concurrent registration in M118, PH150. Energy effects and ideal circuit elements, resistance, capacitance, inductance; active devices, Kirchhoff's Laws, energy conservation; resistive networks, Thevenin/Norton theorems, voltage and current dividers; natural response of first and second-order networks, natural frequencies/poles. 3 credit hours.

EE202 Basic Circuit Analysis II
Prerequisites: EE101, M118. Continuation of EE201. Forced response, transfer functions, initial conditions, impulse response, complete solutions. Sinusoidal steady state techniques, complex transfer functions. Power, energy, power factor, vars. 3 credit hours.

EE211-212 Principles of Electrical Engineering I and II
Prerequisites: PH150, PH205, M118 (may be taken concurrently). Circuit variables, resistance, capacitance, inductance, power and energy. Kirchhoff's laws, analysis of circuits, equivalent circuits. Instruments and measurement techniques. Diodes and transistors, amplifiers and wave shaping circuits. Electric and magnetic field effects, forces, torques, motor and generator characteristics, transformers. Digital logic and elements of logic and switching circuit design. EE212 will include selected laboratory experiments. These courses are intended for non-electrical engineering majors. 6 credit hours.

EE253 Electrical Engineering Laboratory I
Prerequisite: EE202 (may be taken concurrently). Laboratory exercises and projects including resistance, capacitance and inductance measurement, diode, transistor and operational amplifier characteristics. Measurement of electrical parameters. Characteristics and applications of basic electrical laboratory apparatus. Note: students are charged for a standard three-credit hour course. Laboratory Fee. 2 credit hours.

EE271 Computer Science
Prerequisite: sophomore standing. Introduction to the organization of digital computers, number and character representation stored-program concept, instruction processing, memory organization, instruction formats, addressing modes, instruction sets, assembler and machine language programming. Input/output programming, direct memory access. Bus structures and control signals. Computer Use Fee. 3 credit hours.

EE301 Network Analysis
Prerequisites: EE202, M203. Properties of transfer functions; frequency response curves, bandwidth and quality factor. Mutual inductance and two port parameters. Power, energy and harmonic phenomena in polyphase systems. Computer Use Fee. 3 credit hours.

EE302 Systems Analysis
Prerequisite: EE301. Continuous and discrete signals, difference equations. The convolution sum and integral. The Z transform. Fourier series and Fourier transform, ideal filter properties. Frequency analysis of signals. 3 credit hours.

EE341 Digital Computer Techniques
Prerequisites: M118, EE202. Numerical analysis techniques with engineering problems. Design and execution of digital computer algorithms. Digital simulation of dynamic systems. Computer Use Fee. 3 credit hours.

EE344 Electrical Machines
Prerequisite: EE202. Fields, forces, torques in magnetic systems. Theory characteristics and applications of direct current and alternating current machines, including transformers and synchronous and induction machinery. 3 credit hours.

EE347-348 Electronics I and II
Prerequisite: EE202, Concurrent with registration in EE348. Principles and applications of electronic devices including diodes, rectifiers, bipolar transistors, FET's and integrated logic gates. Device models, parasitic effects. Single and multistage power and voltage amplifiers, frequency response, design considerations. Operational amplifiers and other analog integrated circuits. 6 credit hours.

EE349 Electrical Engineering Laboratory II
Prerequisite: EE347, Laboratory exercises and projects. Amplifying integrating and oscillating circuits. Design of logic elements. Transformers and electromechanical systems. Students are charged for a standard three-credit hour course. Laboratory Fee. 2 credit hours.

EE355-356 Digital Systems I and II
Fundamental concepts of digital systems. Combinational logic design including Boolean algebra, gates, map minimization techniques, and the use of MSI components such as multiplexers, decoders, encoders and comparators. Analysis and design of synchronous and asynchronous sequential systems flip-flops, shift registers, counters. Design of larger digital systems. Topics vary and may include the design of a small digital computer. Use of MSI and LSI components. 6 credit hours.

EE361 Electromagnetic Theory
Prerequisite: M203, PH205. Basic electromagnetic theory including static fields of electric charges and the magnetic fields of steady electric currents. Fundamental field laws. Maxwell's equations, scalar and vector potentials. Laplace's equation and boundary conditions. Magnetization, polarization, field plotting. 3 credit hours.

EE362 Electromagnetic Waves
Prerequisite: EE361. Electromagnetic wave propagation and reflection in various structures, including coaxial, two wire and waveguide systems. Various modes of propagation in rectangular waveguides. The dipole antenna. Transmission lines and Smith chart techniques. 3 credit hours.

EE420 Random Signal Analysis
Prerequisites: EE301, EE302. The elements of probability theory. Continuous and discrete random variables. Characteristic functions and central limit theorem. Stationary random processes and auto correlation. Power density spectrum of a random process. Systems analysis with random signals. 3 credit hours.

EE437 Industrial Power Systems Engineering
Prerequisite: EE301. Study of the components forming a power system, its economic operation; symmetrical components and sequence impedance in the study of faults and load-flow studies. 3 credit hours.

EE438 Electric Power Transmission
Prerequisite: EE437. The fundamentals of electric generation, transmission and distribution. Transmission line analysis and performance, circle diagrams. Load-flow studies. Power system stability. 3 credit hours.

EE445 Communications Systems
Prerequisites: EE301, EE302. The analysis and design of communication systems. Signal analysis, transmission of signals, power density spectra, amplitude, frequency and pulse modulation. Performance of communications systems and signal to noise ratio. 3 credit hours.

EE446 Pulse and Digital Circuits
Prerequisites: EE301, EE347. A study of circuits used for digital computer and pulse applications. Linear and non-linear wave shaping, digital logic circuits (DTL, TTL, MOS, I^2L), analog switches, A/D and D/A conversion techniques, timing circuits. Special topics of current interest. 3 credit hours.

EE450 Analysis and Design of Active Networks
Prerequisites: EE301, EE347. Techniques in the analysis and design of active and passive networks. Synthesis of passive networks, the operational amplifier, second-order active networks. Analog, Butterworth and Chebyshev filters. Digital signal processing and additional selected topics. 3 credit hours.

EE453 Electrical Engineering Laboratory III
Prerequisite: senior standing in electrical engineering. Laboratory exercises and projects. Design of digital systems of varying complexity. Use of diagnostic equipment and troubleshooting techniques. Note: Students are charged for a standard three-credit hour course. 2 credit hours.

EE455 Control Systems
Prerequisite: EE302. Analysis of systems employing feedback. Performance criteria including stability. Design of compensation networks. Techniques of root locus, Routh-Hurwitz, Bode and Nyquist. Introduction to modern control theory including the concept of state. 3 credit hours.

EE463 Electromechanical Energy Conversion
Prerequisites: EE361, M204. Introduction to electromechanical devices, lumped parameter electromechanics; introduction to rotating machinery, equilibrium and stability, fields in moving matter; energy conversion dynamics. 3 credit hours.

EE475 Microprocessor Systems
Prerequisites: EE355, EE271. A study of the techniques and methods of designing digital systems using microcomputer systems. Topics include microcomputer assembly language programming techniques, input/output programming, memories, interfacing and analog-digital and digital-analog conversion. The course is structured around laboratory exercises. Computer Use Fee. 3 credit hours.

EE500 Special Topics in Electrical Engineering
Prerequisite: instructor's consent (may be repeated for credit). Open to seniors in electrical engineering. Special topics in the field of electrical engineering. Supervised independent study. Arranged to suit the interest and requirements of the student. Computer Use Fee (dependent upon topic). 3 credit hours.

EE504 Laboratory Thesis
Prerequisite: instructor's consent. Open to seniors in electrical engineering. Students must submit approved proposal. Advanced laboratory problems. Students work on problems of their selection with the approval of the instructor. 3 credit hours.

EE599 Independent Study
Prerequisite: Consent of faculty supervisor and approval of department chairman. Independent study provides the opportunity to explore an area of special interest under faculty supervision. May be repeated. 3 credit hours.

COURSES

Engineering Science

ES103 Technology in Modern Society
Scientific and technological developments and their implications for the future of society. Prospects and problems in communications, energy sources, automation, transportation and other technologies. Use and control of technological resources for public benefit. 3 credit hours.

ES107 Introduction to Engineering
Prerequisite: M115 (may be taken concurrently). Overview of the problems, perspectives and methods of the engineering profession. Modeling of real world problems for purposes of optimization, decision making and design. Practical techniques of problem formulation and analysis. 3 credit hours.

English

Note: E105 and E110 are required by all departments in the university and should be taken not later than the sophomore year. They are also prerequisites for all upper-level English courses.

E101 Reading Strategies
Reading, analyzing, and interpreting non-fiction for the purpose of learning to comprehend textbooks. No credit. Laboratory Fee.

E103 English Fundamentals
Students doing excellent work in E103 may be nominated by the instructor to take E110 rather than E105 as a follow-up.
Designed to increase awareness of the structure of English. Intensive practice in writing to improve the student's ability to construct effective sentences, paragraphs, and short themes. 3 excess credit hours, 6 class hours per week. See section on Developmental Studies program.

E105 Composition
Prerequisite: satisfactory grade on English placement test or E103. Analytical study of essays for the purpose of improving skills of written communication. Practice in writing in a variety of rhetorical modes with emphasis upon clarity and precision. 3 credit hours.

E110 Composition and Literature
Prerequisite: E105 or placement by the English department. Reading, analyzing, and interpreting literature in three basic genres: fiction, poetry, and drama. Writing analytical and critical essays to strengthen skills of written communication and awareness of the human condition. 3 credit hours.

E114 Oral Exposition
A disciplined approach to oral communication for freshmen. Objectives are to develop proficiency in locating, organizing and presenting material and to help the student gain confidence and fluency when speaking extemporaneously. Students beyond the freshman year should take E230. 3 credit hours.

E200 Speedreading
A course to increase reading speed and improve memory and cognitive skills. Laboratory Fee. 1 credit hour.

E201 The Western Tradition in Literature I
Selected translations of European prose, poetry and drama from Homer through the Middle Ages. 3 credit hours.

E202 The Western Tradition in Literature II
Selected translations of European prose, poetry, and drama from the Renaissance to the twentieth century. 3 credit hours.

E211 Survey of English Literature I
A survey of English literature from its beginnings through the Neoclassic era, with emphasis on Chaucer, Shakespeare, Milton and Pope. 3 credit hours.

E212 Survey of English Literature II
A survey of English literature from the Romantic era to the present. Writers studied include Wordsworth, Keats, Arnold, Joyce and Lawrence. 3 credit hours.

E213 Survey of American Literature I
Intellectual and literary movements from Colonial times to the 1850's. Writers studied include Poe, Emerson, Thoreau, Hawthorne, Melville and Whitman. 3 credit hours.

E214 Survey of American Literature II
American literature from Mark Twain to the present. Writers studied include Henry James, T.S. Eliot, Frost, O'Neill, Faulkner and Hemingway. 3 credit hours.

E217 Survey of Black American Literature I
Reading of Black American poets, novelists, essayists and dramatists from the Colonial era through the early twentieth century. Writers studied include Frederick Douglass, Charles Waddell Chesnutt, Paul Dunbar and W.E.B. DuBois. 3 credit hours.

E218 Survey of Black American Literature II
Reading of Black American writers since 1930, including Richard Wright, Countee Cullen, James Baldwin, Imamu Baraka and Gwendolyn Brooks. 3 credit hours.

E220 Writing for Business and Industry
Prerequisite: E105. Intensive practice in the various types of writing required of executives, businessmen, engineers and other professionals, with emphasis on business letters, resumes, internal and external reports, evaluations and recommendations, descriptions of procedures and processes. 3 credit hours.

E225 Technical Writing
Intensive practice in the common forms of technical writing, with emphasis on technical description and the writing of reports and manuals. 3 credit hours.

E230 Public Speaking and Group Discussion
Objectives are to develop proficiency in organizing and presenting material, and to give practice in speaking, group interaction, conference management and small group discussion. 3 credit hours.

E250 Expository Writing
Intensive practice in writing that explains. Emphasis on gathering information, establishing credibility, and attaining clarity, coherence, and point. 3 credit hours.

E260 The Short Story
A critical study of the best stories of American and British writers as well as stories, in translation, of writers of other nationalities. 3 credit hours.

E261 The Essay
Writing of several types of essays; study of contemporary essays and great essays of the past. Particular attention paid to organization, methods of development, and style. 3 credit hours.

E267 Creative Writing I
Imaginative exploration of both prose and verse; practice in writing various short forns if each; particular attention to concrete imagery, effective use of verbal sounds, clarity of thought, and the development of style. 3 credit hours.

E268 Creative Writing II
Emphasis on the elements of short fiction and drama; secondary attention to related forms. 3 credit hours.

E270 Forms of Contemporary Culture
A study of contemporary culture in a variety of forms, including drama, films, TV, periodicals, music, art. Students will be expected to attend performances and exhibitions. The goal of the course is to give the student a better understanding of the scope and meaning of contemporary cultural phenomena and to further the development of the critical sensibility. 3 credit hours.

E275 Film Studies
A consideration of significant full-length feature films selected to represent a national school of filmmaking, a genre, the respective crafts of directors, performers and script writers. Films will be shown in class and studies at the rate of about one a week. 3 credit hours.

E281 Science Fiction
A survey of the development of science fiction during the nineteenth and twentieth centuries. Reading of American, English and European science fiction novels and short stories. 3 credit hours.

E290 The Bible as Literature
A study of literary genres in the Bible: narrative, drama, poetry, wisdom literature, books of prophecy, letters. Extensive readings in both the Old and New Testaments. Emphasis on the King James version, the "noblest monument of English prose." 3 credit hours.

E302 History of the English Language
The structure and development of English, including Indo-European origins and elements of Anglo-Saxon. Emphasis on Middle English. Study of the distinctive coinages of American English. 3 credit hours.

E323 The Renaissance in England
Major writers of the English Renaissance, in poetry and prose, from Wyatt and Surrey in the early sixteenth century through Sidney and Spenser to Donne and Milton. 3 credit hours.

E341 Shakespeare I
An analysis of representative history plays, early comedies and tragedies. 3 credit hours.

E342 Shakespeare II
An analysis of representative later plays. 3 credit hours.

E353 Literature of the Romantic Era
Poetry and prose of the major Romantics—Wordsworth, Coleridge, Byron, Shelley, Keats, Lamb, and Hazlitt—with attention given to the milieu of the writers, the Continental background and theories of Romanticism. 3 credit hours.

E356 Later Nineteenth-Century English Literature
Poetry and prose from 1830-1900. The works of Tennyson, Browning, Arnold, Swinburne, Carlyle, Mill, Newman, Ruskin and others studied in the light of the social, political and religious problems of the period. 3 credit hours.

E361 Modern British Literature
British fiction, drama and poetry from 1900 to the present. May include works of Conrad, Joyce, Lawrence, Woolf, Huxley, Forster, Shaw, Yeats, Auden, Spender and Dylan Thomas. 3 credit hours.

E362 The Age of Donne and Milton
Major writers of prose and poetry during the period 1600-1660: Donne, Milton, Burton, Bacon, Herbert and others. 3 credit hours.

COURSES

E371 Literature of the Neoclassic Era
British writers of the period 1660-1789, with emphasis upon Dryden, Pope, Swift and Johnson. 3 credit hours.

E375 The Age of Chaucer
A detailed reading and critical study of Chaucer's *Canterbury Tales*, with some study of his predecessors and the medieval cultural milieu. 3 credit hours.

E390 The English Novel I
The development of the novel in England from Defoe to Dickens and Thackeray. 3 credit hours.

E391 The English Novel II
The development of the novel in England from George Eliot and Hardy to the present. 3 credit hours.

E392 Poe, Hawthorne and Melville
A study of the poetry and fiction of the major representatives of the tragic outlook on life in mid-nineteenth century American literature. Poe, Hawthorne and Melville. 3 credit hours.

E395 American Realism and Naturalism
Readings in the works of such major realists as Howells, Twain and James and important naturalist successors such as Frank Norris, Stephen Crane and Theodore Dreiser. 3 credit hours.

E402 Modern Poetry
A study of the works of representative twentieth-centry British, American and Continental poets. 3 credit hours.

E405 Modern Drama
Principal movements in Continental, British and American drama from Ibsen to the present. 3 credit hours.

E406-409 Continental Literature
Selected poetry, drama and fiction, in translation, of the European masters, primarily Russian, French, German or Spanish. Topic to be announced for each semester. 3 credit hours each course.

E477 American Literature Between World Wars
A study of the achievements of the main figures of the heroic generation that flourished between the two world wars and brought about "America's Coming of Age." Poets Ezra Pound, T.S. Eliot, Robert Frost, Wallace Stevens and William Carlos Williams; novelists Hemingway, Faulkner, Fitzgerald. 3 credit hours.

E478 Contemporary American Literature
Intensive study of recent American fiction, poetry and drama. 3 credit hours.

E480 Internship
A work experience, arranged through the department, that will require the effective use of written or spoken English.

E481-498 Studies in Literature
Special topics in literature, which may include a concentration upon a single figure, a group of writers or a literary theme. 3 credit hours each course.

E599 Independent Study
Prerequisites: consent of the instructor and the chairman of the department; restricted to juniors and seniors who have at least a 3.0 quality point ratio. Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester.

Finance*

FI113 Business Finance
Prerequisites: A112, EC134, QA118. An introduction to the principles of financial management and the impact of the financial markets and institutions on that managerial function. An analytical emphasis will be placed upon the tools and techniques of the investment, financing and dividend decision. In addition, the institutional aspects of financial markets, including a description of financial instruments, will be developed. 3 credit hours.

FI214 Principles of Real Estate
Prerequisite: FI113. An introduction to the fundamentals of real estate practice and the essentials of the various aspects of the real estate business. Emphasis will be placed on brokerage, mortgage financing, investments, management and valuation relative to commercial and industrial real estate. 3 credit hours.

FI227 Risk and Insurance
Prerequisite: FI113. An examination and evaluation of risk in business affairs and the appropriate methods for handling them from the viewpoint of the business firm. Emphasis will be placed on, and extended consideration devoted to, the various forms of insurance coverage. 3 credit hours.

FI229 Corporate Financial Management
Prerequisites: FI113, QA216. A comprehensive analysis of the structure of optimal decisions relative to the functional areas of corporate financial decision making. Emphasis is placed upon developing an understanding of the applications and limitations of decision models for the investment, financing and dividend decisions of the corporation. Topics include: firm valuation, capital budgeting, risk analysis, cost of capital, capital structure and working capital management. 3 credit hours.

FI230 Investment Analysis and Management
Prerequisites: FI113, QA216. An analysis of the determinants of valuation for common stocks, preferred stocks, bonds, convertible bonds and preferred stock, stock warrant and puts and calls. Emphasis will be placed on the analytical techniques of security analysis, portfolio analysis and portfolio selection. 3 credit hours.

FI325 International Finance
Prerequisite: FI113. An introduction to the theory and determination of foreign exchange rates, mechanisms of adjustment to balance of payments disturbance, fixed vs. flexible exchange rates. The international reserve supply mechanism and proposals for reform of the international monetary system. 3 credit hours.

FI341 Financial Decision Making
Prerequisites: FI229, FI230, QA333. An examination of the conceptual foundations underlying portfolio theory, capital market theory and firm financial decision making. Emphasis will be placed on an integrated analysis of firm financial decision making under varying conditions of certainty and capital market perfections. 3 credit hours.

FI345 Financial Institutions and Markets
Prerequisites: FI113, QA216. An examination of the relationship between the financial system and the level, growth and stability of economic activity. Emphasis will be placed upon the theory, structure and regulation of financial markets and institutions, coupled with the role of capital market yields as the mechanism that allocates savings to economic investment. 3 credit hours.

*Note: Due to expanding use of computing capabilities, a computer use fee may be charged in any finance course.

Fine & Applied Art
(See Art)

Fire Science

FS105 Municipal Fire Administration
This course delineates the fire safety problem, explores accepted administrative methods for getting work done, covers financial considerations, personnel management, fire insurance rates, water supply, buildings and equipment, distribution of forces, communications, legal considerations, fire prevention, fire investigation, and records and reports. Course content is designed for individuals involved in either public or private fire protection systems as well as those in safety or insurance. 3 credit hours.

FS106 Fire Strategy and Tactics
A study of the responsibilities and operating modes of officers commanding fire department units, including engine, ladder and rescue companies. Initial evaluation of the problems confronting first arriving units. Outline of particular problems encountered in various types of occupancies and buildings. Stress on safety of the operating forces as well as of the public. Standpipe and sprinkler system utilization. Overhauling operations. 3 credit hours.

FS201 Essentials of Fire Chemistry with Laboratory
The examination of the chemical requirements for combustion, the chemistry of fuels and explosive mixtures and the study of the various methods of stopping combustion. Analysis of the properties of materials affecting fire behavior. Detailed examination of the basic properties of fire. Laboratory Fee. 4 credit hours.

FS202 Principles of Fire Science Technology
This course is an introduction to the science of public fire protection with a review of the role, history and philosophy of the fire service in the United States. It includes career orientation and a discussion of current and future problems in public fire protection. 3 credit hours.

FS207 Fundamentals of Fire Prevention
This course considers fire loss, investigation standards, laws, engineering, chemistry and physics as related to those persons entering into or already employed in the various branches of the fire service. It will also consider the fire and safety problems involved in storage and handling of specific hazardous materials. 3 credit hours.

FS301 Building Construction, Codes and Standards
The various types of construction materials and their properties with emphasis on the effect of heat, water, and internal pressures generated under fire conditions. Familiarization with national, state, and local ordinances and codes which influence the fire protection field. 3 credit hours.

FS303 Fire Protection Fluids and Systems
Chemical properties of fluids used in fire suppression systems and operations. Design of water supply and distribution for fire protection. Laboratory study of operational and hydraulics problems. 3 credit hours.

FS304 Fire Detection and Control
Heat, sensitivity, thermostats, fusible elements, fire detection systems, designs and layouts, alarm systems, power sources, safeguards, municipal alarm systems, construction, installation and maintenance requirements, standards and codes. Automatic extinguishing systems, design and layout of water, gas and power systems. 3 credit hours.

COURSES

FS306 Fire and Casualty Insurance
This course will examine the institution of fire insurance in the United States since it is the primary means of minimizing the economic consequences of property fire damage. 3 credit hours.

FS402 Arson Investigation
An analysis of incendiary fire investigations from the viewpoint of the field investigator with an emphasis on the value of various aids and techniques in the detection of arson, collection and preservation of evidence, investigation, interrogation, related laws of arson, court appearances, and testimony. There will be a discussion of case study illustrations. 3 credit hours.

FS403 Process and Transportation Hazards
Special hazards of industrial processing, manufacturing and the transportation of products and personnel. Analytical approach to hazard evaluation and control. Reduction of fire hazards in manufacturing processes. 3 credit hours.

FS404 Special Hazards Control
Types of industrial processes requiring special fire protection treatment such as heating equipment, flammable liquids, gases and dusts. Emphasis on fundamental theories involved, inspection methods, determination of relative hazard, application of codes and standards and economics of installed protection systems. 3 credit hours.

FS405 Fireground Management
A study of the effective management of suppression forces at various fire situations. Includes consideration of pre-fire planning, problem identification and solution implementation. Case studies of actual and theoretical fire incidents, command control concepts, maximum utilization of forces available, priorities of action and logistics at large-scale operations will be covered. 3 credit hours.

FS406 Arson Investigation II
Prerequisite: FS402. An advanced course showing the principles and methods of investigation involving the techniques needed for the investigation of gas fires, automobile and boat fires, electrical fires, explosions and bomb scene investigation. 3 credit hours.

FS407 Arson Investigation II Laboratory
This course consists of experiments dealing with FS406. Laboratory Fee. 1 credit hour.

FS498-499 Research Project
One lecture per week in FS498; credit—1 credit hour. One lecture and one laboratory session per week in FS499; credit—2 credit hours. Development of a student project and a written report in a specified area in fire administration or fire science technology with faculty supervision. Grade awarded upon completion of project. This is a two-semester course with FS498 as prerequisite for FS499. 3 credit hours over two-semester period.

FS500 Selected Topics
Selected topics in fire science on a variety of current problems and specialized areas not available in the regular curriculum. 3 credit hours.

FS599 Independent Study
Prerequisites: consent of faculty member and chairman of department. Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

French

FR101-102 Elementary French
Stresses pronunciation, aural and reading comprehension, basic conversation and the fundamental principles of grammar. 6 credit hours.

FR201-202 Intermediate French
Prerequisites: FR101-102 or equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Students are encouraged to do some reading in their own areas of interest. 6 credit hours.

FR301-302 Main Currents of French Literature
Prerequisites: FR201-202 or equivalent. Reading of significant writers of French literature from the Middle Ages to the twentieth century. 6 credit hours.

German

GR101-102 Elementary German
Stresses pronunciation, aural and reading comprehension, basic conversation and the fundamental principles of grammar. 6 credit hours.

GR201-202 Intermediate German
Prerequisites: GR101-102 or the equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Texts used in the course are selected from many areas of study, including physics, biology and chemistry. Students are encouraged to read in their own areas of interest. 6 credit hours.

History

HS101 Foundations of the Western World
Traces the course of western civilization from its earliest beginnings in the ancient Middle East down to the eighteenth century. Includes major cultural trends, interactions between society and economy and analysis of the rise and fall of empires. 3 credit hours.

HS 102 The Western World in Modern Times
Europe and its global impact from the eighteenth century to the present. Includes revolutionary movements, the evolution of mass democracy and the world wars of the twentieth century. 3 credit hours.

HS 105 Foundations of Economic History
A survey of the economic history of the western world from the earliest civilizations to the advent of industrialization in Europe. Includes discussion of the ancient economy, the commercial revolution and the impact of European colonization. 3 credit hours.

HS 106 Modern Economic History
Economic development of the industrialized world in the nineteenth and twentieth centuries. Includes United States, Europe, Japan. Special emphasis will be given to the social and cultural impact of economic changes. 3 credit hours.

HS 108 History of Science
The development of science and technology from antiquity to the present. Their impact on society and the world. 3 credit hours.

HS 110 American History since 1607
A one-semester survey course, covering such major topics as colonial legacies, the American Revolution, nation-state building, sectional tensions, urbanization, industrialization, the rise to world power status, social and cultural developments and post-World War II. Not open to those who have had HS 211 or 212. 3 credit hours.

HS 120 History of Blacks in the United States
The history and background of Black people in the United States. Social, political and cultural development. 3 credit hours.

HS 207 World History since 1945
Survey of major events and trends since World War II. Advanced industrial societies are emphasized. Includes decolonization, East-West conflicts and patterns of economic cooperation and competition. 3 credit hours.

HS 211 United States to 1865
Survey of American social, economic, political and diplomatic developments from Colonial times to 1865. Not open to those who have had HS 110. 3 credit hours.

HS 212 United States since 1865
Survey of American history from 1865 to the present. Institutional and industrial expansion, periods of reform and adjustment. The U.S. as a world power. Not open to those who have had HS 110. 3 credit hours.

HS 223 United States Diplomatic History
The ideas, trends and interpretations of U.S. diplomacy from the American Revolution to the present. 3 credit hours.

HS 260 Modern Asia
The ideological, cultural and traditional political, economic and diplomatic history of East, South and Southeast Asia from the sixteenth century to the present. 3 credit hours.

HS 311 Colonial and Revolutionary America to 1789
The cultural and political background of British North America, Colonial and Revolutionary America. The creation of a republican society. 3 credit hours.

HS 312 United States in the Twentieth Century
The interaction of political, economic, social, intellectual and diplomatic events and their impact upon twentieth century America. 3 credit hours.

HS 322 United States Social and Intellectual History
The ideological, cultural and social development of the American people. The impact of ideas on American life. 3 credit hours.

HS 341 Ancient Greece and Rome
The rise and decline of ancient Greece and Rome. Institutions and ideas that have shaped Western civilization. 3 credit hours.

HS 343 Renaissance and Reformation Europe
Europe from 1300 to 1650; from feudal state to nation state; religious unity to diversity. 3 credit hours.

HS 344 Europe in the Seventeenth and Eighteenth Centuries
The cultural, political and economic life of Europe from classicism to the Napoleonic period; the Enlightenment. 3 credit hours.

HS 345 Europe in the Nineteenth Century
European history from the Napoleonic period to World War I; its internal development and world impact. 3 credit hours.

HS 349 Modern European Intellectual History
The intellectual, scientific and social thought from the Enlightenment to the present. The influence of ideologies on modern thinking. 3 credit hours.

HS 351 Russia and the Soviet Union
The development of czarist Russia from 1200 to the Revolution of 1917; the U.S.S.R. from 1917 to the present. 3 credit hours.

HS 353 Modern Britain
The development of British history from the Restoration of 1660 to the present. Includes Britain's role in international affairs. Special emphasis on social and economic topics. 3 credit hours.

COURSES

HS355 Modern Germany
German civilization from the seventeenth century to the present; its impact on Europe and the world. 3 credit hours.

HS381-389 Selected Studies in History
Special topics in history dealing with the modern world. A study in depth of vital historical issues. 3 credit hours.

HS432 Latin America in the Twentieth Century
Latin America since 1890, inter-American relations and current revolutionary movements. 3 credit hours.

HS446 Europe in the Twentieth Century
Recent and contemporary European history beginning with World War I. Institutional development and its changing role in world politics. 3 credit hours.

HS447 Economic History of Europe since 1945
Europe in world trade and payments, the European economic community, business management and the welfare state. 3 credit hours.

HS451 Economic History of the Soviet Union
The pre-1917 background. Problems of planning: organizational framework, the implementation of Marxism as an economic system. 3 credit hours.

HS461 Modern China
The ideological, cultural and historical background of China. The imperial order, Kuomintang and the Communist revolution to the present. 3 credit hours.

HS465 History of the Middle East
The rise, spread and development of Islam to the present modern nationalisms: Turkish, Iranian, Arab and Zionist. 3 credit hours.

HS466 Modern Japan
The institutional and cultural traditions of Japan. The feudal period and subsequent modernization, postwar political, economic and cultural transformations. 3 credit hours.

HS470 Modern Africa
The political and cultural history of North Africa. The colonial domination of sub-Sahara Africa and the emergence of the independent states after 1945. 3 credit hours.

HS490 Historiography
A survey of European and American historical thought, historical methods and contemporary historical writing. 3 credit hours.

HS491 Senior Seminar
The undertaking of an independent study and research project. Required of all history majors in their senior year. 3 credit hours.

HS599 Independent Study
Prerequisite: consent of faculty member and chairman of department. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 6.

Hotel and Restaurant Management

Courses offered other than the usual Fall-Spring schedule are noted.

HR100 Introduction to the Hospitality Industry
An introduction to the various operations within the hospitality industry, with special emphasis on current trends in hotel/restaurant management and operations. 3 credit hours.

HR200 Volume Food Production and Service I
Prerequisites: HR202, HR325. This course examines present day concerns about volume foods and the many meanings of food in the lives of people. It covers the scientific principles of volume food preparation; physical and chemical changes involved; techniques used to select certain foods in large volumes. Laboratory experiences are provided. 3 credit hours. (Fall)

HR202 Volume Food Purchasing
Introduction to the purchasing, receiving and issuing of foods and food items. The identification of guides, preparation of specifications, and cost control procedures are stressed. Field trips are required. 3 credit hours.

HR204 Volume Food Production and Service II

Prerequisites: HR200, HR202, HR325. This course examines menu planning and quantity recipes standardization integrated with techniques, methods, principles and standards of volume food production and service. Supporting areas such as volume receiving, storage, sanitation, safety and equipment, and the phases of organization involved in the preparation and service of volume foods for large groups. Students assume responsibility for planning, purchasing, preparing and obtaining the food and labor cost for each preparation. Laboratory experiences are provided for quantity food production and service to the public. Laboratory Fee. 3 credit hours. (Spring)

HR210 Hotel Front Office Systems

Prerequisite: HR100. An introduction to the work flow connected with front office procedures. Preparation of the night audit; an introduction to the art of innkeeping. 3 credit hours.

HR212 Laws of Innkeeping

Prerequisite: HR100 or consent of the instructor. The historical development of the common inn. Innkeeper/guest relationships, responsibilities of the innkeeper, and use of the innkeeper's lien. 3 credit hours.

HR215 Supervised Field Experience I

Prerequisite: consent of the instructor. 250 hours of field work in hotels, restaurants, institutions, clubs, dietetics, or tourism agencies. The field experience will emphasize marketing techniques, and will be accompanied by readings, reports, journals and faculty conferences. 3 credit hours. (Fall)

HR217 Supervised Field Experience II

Prerequisite: consent of the instructor. 250 hours of field work in hotels, restaurants, institutions, clubs, dietetics, or tourism agencies. The field experience will emphasize selected aspects of personnel management, and will be accompanied by readings, reports, journals and faculty conferences. 3 credit hours. (Spring)

HR219 Supervised Field Experience III

Prerequisite: consent of the instructor. 250 hours of field work in hotels, restaurants, institutions, clubs, dietetics, or tourism agencies. The field experience will emphasize accounting procedures, and will be accompanied by readings, reports, journals and faculty conferences. 3 credit hours. (Fall)

HR221 Supervised Field Experience IV

Prerequisite: consent of the instructor. 250 hours of field work in hotels, restaurants, institutions, clubs, dietetics or tourism agencies. The field experience will emphasize computer applications and cost control procedures and will be accompanied by readings, reports, journals and faculty conferences. 3 credit hours. (Spring)

HR300 Special Topics

The hotel and food service fields are constantly changing due to new technology and avenues for their expansion and management. The purpose of these courses is to select special topics that are not covered in existing courses and expose the students to recent developments and future research in the following specific courses. All selected courses will be offered in the fall, spring, and summer semesters. 3 credit hours.

HR300 Club Operations and Management

The management of the private club environment contrasted with the traditional profit-motivated segments of the hospitality industry will be emphasized. Organization and operation of clubs including special problems in social and recreational aspects, membership and taxes will also be included.

HR300 Club Property Management

Basic principles of graphic communication as a management tool are covered as they relate to private club property management. Physical plant organization and internal spatial relationships common to private clubs are stressed.

HR300 Club Banquet Management

In-depth anaylsis of the management problems involved in selling, organizing and servicing club banquets.

HR300 Introduction to Club Management

A survey of the history, organizational structure and future direction of the private club industry.

HR300 Private Club Administration

Design, analysis and evaluation of private club administration systems and operations. Emphasis is placed on analytical techniques, model building and computer-assisted club operations.

HR300 Committee Policies and Procedures in Club Management

Current policy and procedure topics in club management will be stressed. Rules, regulations, legal aspects and board involvement outlining club policy and procedures will also be emphasized.

COURSES

HR 300 Hotel Security
An examination of the current state of the art security systems used in the hospitality industry. Theft control, vandalism, guestroom security and management solutions will be discussed.

HR 300 Bar Management
Emphasis in this course is placed on the product and the manager's role and responsibilities in developing and operating a facility serving alcoholic beverages. Maximum sales potential through use of existing facilities is stressed. Laboratory Fee.

HR 300 Wine Appreciation
This course considers the major wines and wine regions of the world, with special emphasis on American, French, German, Italian and Spanish products. Evaluation by tasting is an integral part of the course. Laboratory Fee.

HR 300 Casino Management
Practices and problems associated with casino management are discussed; staffing, security and control, taxation and entertainment policies are included.

HR 300 Energy Management in the Hospitality Industry
The control and operation of energy-related systems in the hotel, restaurant, club, and institutional operation will be a focal point. Heating, lighting, and general maintenance systems will be thoroughly investigated.

HR 300 Meat Selection and Grading
This course deals with the major categories of beef, veal, lamb, and pork products from hotel, restaurant, club, and institutional standpoints. Nutritive value, structure and composition, sanitation, selection and purchasing, cutting, freezing, portion control and miscellaneous topics are covered.

HR 300 Ski Resort Management
Principles of modern ski resort management as they pertain to staffing, controlling, directing and organizing an efficient and profitable ski resort will be emphasized. Seasonality, ski-lift design, food and beverage operations, equipment rentals and recreational facilities will be discussed.

HR 300 Resort Management
Emphasis upon recreation aspects, concession-stand management, outdoor activities and overall hotel resort management policies are stressed. The course will more generally focus upon the unique problems of resort hotel management and the application of special techniques to meet these problems.

HR 300 Historical Inns of Connecticut/New England
An examination and survey of the most reputable and profitable country inns throughout Connecticut and New England. Their historical development, attributes of longevity and management structure are emphasized. Field trips are required.

HR 300 Grand Hotel
An examination of the characteristics of the great hotels which established service goals for the industry. The course will survey development of the European and American palace hotels, the spa hotel, resort hotels and the small luxurious hotel. Particular attention will be paied to the contributions of famous chefs and managers, developments in hotel architecture, social events and public relations mechanisms, especially identification with famous personalities. Implications of this tradition for modern large hotels will be explored.

HR 300 Convention Bureau Management
An in-depth analysis of local, state and national convention bureaus and how they contribute to the economic and social stability of a community. Ways in which their efforts are coordinated with the hospitality industry will also be stressed.

HR 300 Computer Systems in the Hotel and Restaurant Industry
An introduction to information systems and computing machines within the hotel and restaurant industry. Students learn keypunching and programming skills for application to selected business problems. Programs will be executed on the university's computer.

HR 300 Food Service and Lodging Study Tours
Food service and lodging study tours will be organized for academic credit. Domestic and/or international food service and lodging properties will be evaluated by students on a comparative basis. Management styles of operation will be scrutinized.

HR 300 Garde Manger
Students will be instructed in the practice of food embellishment and garnishing techniques adaptive to hotel and restaurant service. Special emphasis is placed upon meats, vegetables, salads, breads, cake decorations, hors d'oeuvres and desserts. Students will be evaluaated on the merits of their ability to prepare selected food garnishes.

HR 300 Pastry and Dessert Preparation
Emphasis is placed upon the techniques, preparation and presentation of pastries and desserts. Students will be evaluated on the merits of their ability to prepare selected desserts and pastries.

HR300 Franchising in the Hospitality Industry
A course designed to cover the specific steps involved in developing a franchise operation from the viewpoint of both the franchisor and the franchisee. Feasibility studies, real estate, plans and project costs, financing project analysis, corporate structure and operations are some of the topics to be studied.

HR300 Managerial Accounting in the Hospitality Industry
Deals with the generation and analysis of quantitative information for the purpose of planning, control and decision making by managers at various levels in hospitality industry operations. Emphasis is placed on the need for and use of timely and relevant information as a vital tool in the management process.

HR300 Hospitality Investment Management
A survey of investment opportunities and the methods of analysis used by business and the individual to determine the best use of investment funds. Special emphasis is placed on the stock and bond markets, including security portfolio management.

HR300 Financial Analysis and Planning
An examination of the financial statements of several types of businesses in the hospitality industry. The methods of analysis are discussed, including cash budgeting, forecasting of revenue and expenses, capital expenditure planning and break-even point studies. The case study method will be used.

HR300 Internal Control in Hotels
Discussion of the problems encountered in distributing the accounting and clerical work in hotels so as to provide a good system of internal control. Study of many actual cases on the failure of internal control and the analysis of the causes of the failure. Practical problems and actual techniques of functioning systems of internal control.

HR300 Financial and Tax Aspects of the Leisure Time Industries
Financial and tax considerations associated with the acquisition, expansion and diversification of industries providing products and services for leisure time pursuits. Phases include the macroeconomics and microeconomics of the leisure time industries and the financial, tax and accounting considerations ations in acquisitions and mergers.

HR300 Management of a Retail Food Service Operation
Supervision of food preparation and service in a retail operation is taught using university food services. Student managers are responsible for the preparation and service of foods which meet an institutional menu for two cafeterias. The preparation of foods for dining room, private function, and banquet menus is also controlled by the student managers as they rotate through the various preparation units. Quality and cost of foods presented to consumers are stressed. An integral part of the course involves coordination and cooperation with visiting professional chefs. Lectures and seminars in the theory and practice of management accentuate the practical management experience in the laboratories.

HR300 Survey of Convenience Foods
Methods of food preservattion are reviewed with special emphasis on the place of prepared foods in the commercial food operation. The student serves and evaluates prepared hors d'oeuvres, salads, soups, entrees, desserts and vegetables from the standpoints of quality, cost and menu adaptability.

HR300 Catering for Special Functions
The systematic presentation of catering for special functions. Emphasis is placed on maximum sales potential through use of existing facilities. Lectures and demonstrations on banquet layout, menus, service and sales.

HR300 Introduction to Properties Management
Basic principles of graphic communication as a management tool for problem solving are covered in this course, which includes drafting fundamentals and also the interpretation of both presentation and technical drawings. Principles of site analysis and site planning, physical plant organization and internal spatial relationships common to hotel and restaurant properties are stressed.

HR300 Food Facilities Programming, Planning and Design
Lectures and laboratory deal with first-stage planning, which must be done by the owner or his consultant in the programming for any project of mass feeding. The many factors which must be programmed in order to satisfy all principal objectives are outlined: site selection, market analysis, kind of operation, merchandising program and surveys to determine the wants and needs of patrons to be served. Also included are research studies to resolve menu requirements, to plan for the particular type of service to be employed, to create desired atmosphere to program functions of personnel, to plan maintenance, analyze administrative objectives and to develop the major prospectus. Pro forma studies and feasibility research round out the coverage.

HR300 Baking
The art and science of applying baking principles in food service and institutional settings is emphasized. Students will be evaluated on the merits of their baking abilities.

COURSES

HR 300 Sanitation and Safety in the Hospitality Industry
The causes and prevention of food poisoning and accidental occurrences in the hospitality industry are stressed. Emphasis is placed on the current problems confronting the industry, with recent developments as they relate to sanitation and safety. Guidelines formulated by the National Sanitation Foundation and the Occupational Safety and Health Administration will be presented.

HR 304 Cultural Understanding of Foods and Cuisines
Prerequisite: HR 200. This course examines foods, including the culinary highlights and the historical and social implications of the foods of selected countries and regions. In addition to the preparation of many foods, which will be based on the components of menus and nutritive values, this course will trace the development of traditional cookery, eating customs, special serving techniques, and the mastery of unusual food production techniques and equipment. Laboratory experiences are provided with service to the public. Laboratory Fee. 3 credit hours.

HR 321 Hotel, Restaurant, and Institutional Food Service Accounting and Auditing Procedures
Prerequisite: A 101. Accounting and auditing procedures for hotels, restaurants and institutions. Managerial accounting practices for the hospitality industry will be stressed. 3 credit hours.

HR 322 Marketing and Sales Promotion for the Hospitality Industry
Prerequisite: HR 100. An analysis of aspects of the services market with emphasis on hotel and restaurant marketing. Internal and external stimulation of sales in competitive and non-competitive markets; vagaries of environmental concepts; experimental techniques in industry-sponsored salesblitz activities. 3 credit hours.

HR 325 Food and Labor Cost Controls
Prerequisites: HR 100, HR 202, HR 321, and A 101. Current methods and principles of food and beverage control and labor cost controls for hotels, restaurants, and institutions. Emphasis will be placed on food and beverage cost control techniques. 3 credit hours.

HR 326 Personnel Management in the Hospitality Industry
Techniques and philosophies of personnel management as applied to various types of hospitality operations. 3 credit hours.

HR 330 Institutional Environmental Services and Housekeeping
This course examines environmental and housekeeping services in public and private institutions. Emphasis is place on the management of these services in educational and health care institutions and on the selection of materials, chemicals, equipment and labor to provide these services in a cost-quality manner. 3 credit hours.

HR 410 Systems and Operations
Design, analysis and evaluation of hotel, restaurant and institutional food service administration systems and operations. Emphasis is placed upon analytical techniques and case study analysis. 3 credit hours.

HR 411 Food Service Equipment and Layout Design
A study of building management, stressing the interdependence of planning, construction, equipment, maintenance, personnel and service to the on-premise customer. Layout studies, equipment design and budget estimation are studied. 3 credit hours.

HR 510 Field Work
Permission of the department chairman required. Students will be assigned to work on projects and/or assigned to specific training programs with professionals in their major area of study in participating hotels, restaurants, and institutions. (Summer, intersession) 3 credit hours.

HR 512 Seminar in Hospitality
Current topics and developments within the hospitality industry: food service, lodging, clubs, institutions and tourism. Senior status or consent of the instructor is required. 3 credit hours.

HR 598 In-process Registration for Cooperative Education Program (Co-op)
Permission of the department co-op advisor required. The advisor works closely with the student in designing a plan of study that integrates full-time work experience and academic study within the student's academic major and area of interest. Noncredit, but may be used in conjunction with other appropriate credit courses. (Offered fall, intersession, spring and summer semesters.)

HR 599 Independent Study
Permission of the department chairman required. Independent research projects or other approved phases of independent study. 3 credit hours.

Industrial Engineering

IE 102 Introduction to Programming/FORTRAN
Prerequisite: M 109 or equivalent. A first course in computer programming using the FORTRAN language, for engineering and science students. Problem solving methods and algorithm development. Designing, coding, debugging and documenting FORTRAN programs using good programming style. Laboratory Fee. 3 credit hours.

IE105 Introduction to Programming/COBOL
Prerequisite: M109 or equivalent. A first course in computer programming using the COBOL language, for business data processing majors. Problem-solving methods and structured programming style. Designing, coding, debugging and documenting COBOL programs. Student programs will be oriented toward business problems. Laboratory Fee. 3 credit hours.

IE106 Introduction to Programming/Pascal
Prerequisite: M109 or equivalent. A first course in computer science using the Pascal language, for computer science majors and minors. Introduces problem solving methods and algorithm development and teaches how to design, code, debug and document programs using good style. Laboratory Fee. 3 credit hours.

IE107 Introduction to Data Processing/BASIC
An introduction to the concepts underlying the modern application of computer systems. Current technology and social issues are considered. Simple programming is done in the BASIC language. Intended for business and humanities students taking only one computer course or as a basis for further work with computers. Not to be taken for credit by majors. Computer Use Fee. 3 credit hours.

IE204 Engineering Economics
Prerequisite: M116 or M117. A quantitative analysis of applied economics in engineering practice; the economy study for comparing alternatives; interest formulae; quantitative methods of comparing alternatives; intangible considerations; selection and replacement economy for machines and structures; break-even and minimum cost points; depreciation; effect of income taxes on the economy study; review of current industrial practices. Promotes logical decisions through the consideration of alternative courses of action. 3 credit hours.

IE214 Engineering Management
Provides insight into the elements of the managerial process and develops a rational approach to the problem of managing productive processes and the engineering function. Focusing largely upon the complex problems of top- and middle-level management, this course investigates the modern tools that managers use under given circumstances, yet stresses the ongoing activities of management as part of an integrated, continuous process. 3 credit hours.

IE223 Personnel Administration
Prerequisite: IE214 or MG125. Provides a foundation in fundamental concepts and a general knowledge of techniques in the administration of personnel relations. The nature of personnel administration, the handling of personnel problems, employee attitudes and morale. Techniques of personnel administration; recruitment and interviews, placement, training, employee rating. In addition, wage policies and administration related to the IE function are emphasized. In order to secure breadth and depth in the approach to personnel problems, case studies are used at appropriate points throughout the course. 3 credit hours.

IE224 Advanced Programming/FORTRAN
Prerequisites: IE102 and M115. Continues to develop program design techniques, especially involving larger and more complex problems. Simple data structures. Modular program design. Advanced debugging techniques. Programming problems will involve typical engineering applications. Laboratory Fee. 3 credit hours.

IE225 Advanced Programming/COBOL
Prerequisite: IE105. Continues to develop program design techniques and apply them to increasingly complex business oriented problems. Topics include using COBOL interactively, tables, the sort-merge utility, subroutines, advanced debugging. Laboratory Fee. 3 credit hours.

IE226 Advanced Programming and Data Structures/Pascal
Prerequisites: IE106 andM115. Objectives are to continue to develop program design techniques and apply them to more complex problems. Data structures: linked lists, stacks, trees. String processing. Recursion. Debugging technique. Programming problems will be oriented toward systems programming. Laboratory Fee. 3 credit hours.

IE228 Intensive FORTRAN
Prerequisite: IE226. A five-week course during which FORTRAN programming skill is acquired by analogy to Pascal. Several programs will be written. This course will run during the first five weeks of the semester, before IE229. Laboratory Fee. 1 credit hour.

IE229 Intensive COBOL/BASIC
Prerequisite: IE226. A 10-week course during which the skills required for programming in COBOL and BASIC are covered. At least six programs will be written: four in COBOL, two in BASIC. This course will run during the last 10 weeks of the semester, after IE228. Laboratory Fee. 2 credit hours.

IE233 Cost Control
Prerequisite: M115. Basic analysis of cost control techniques. Designed to give members of the management team the underlying rudiments of cost estimating and control systems. Theory of standard costs, flexible budgeting and overhead handling techniques emphasized by analytical problem solution. 3 credit hours.

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IE234 Production Control
Prerequisite: IE214, M115. Operations management students may substitute MG125 for the IE214 prerequisite. The basic principles that govern production control in an industrial plant. The principles used in solving problems of procuring and controlling materials, in planning, routing, scheduling and dispatching are considered. Familiarizes the student with existing and new methods used in this field including MRP, computer aided process planning, group technology and O.R. techniques. 3 credit hours.

IE237 Data Structures and Algorithms
Prerequisite: IE226. The following topics are covered: data structures—trees, graphs, hash tables. Recursive techniques—divide and conquer, backtracking, recursion elimination. Algorithms—sorting, searching, garbage collection, storage management, shortest paths, parsing. Analysis of the complexity of algorithms. The required programming will be done in Pascal. Laboratory Fee. 3 credit hours.

IE243 Work Analysis
Prerequisite: M115. An introductory course in methods and in motion analysis and work measurement. Motion and methods analysis techniques including the principles of motion economy, process analysis charting, operations analysis, activity analysis and work design layout analysis. Students are required to design a work place project which will be filmed on closed-circuit television for analysis. Work measurement includes an introduction to time study fundamentals and predetermined time systems. Laboratory Fee. 3 credit hours.

IE320 Operating Systems
Prerequisite: IE224 or IE225 or 226. A study of operating systems, historical and modern. Process management, concurrency, deadlock, memory management, file systems, interrupts, resource allocation, protection. 3 credit hours.

IE325 APL/RPG
Prerequisite:IE224, 225 or 226. Two languages are presented that embody unusual control structures. APL was designed for interactive use by engineers. Programming problems in APL will involve manipulation of arrays. RPG is a non-sequential business oriented language. Programming problems will be business report oriented. Laboratory Fee. 3 credit hours.

IE332 PL/1
Prerequisite: IE224 or IE225 or IE226. An advanced course in programming using PL/1. Topics: sorting, searching, string manipulation, finite state machines, linking, recursion. Laboratory Fee. 3 credit hours.

IE333 File Processing
Prerequisite: IE229 or IE105. Provides students with concepts, techniques and experience in file processing. Topics include physical characteristic of storage devices. File I/O and manipulation techniques for sequential and direct access organization. Blocking and buffering. File security. External sort/merges. Programs will be written in the COBOL language. Laboratory Fee. 3 credit hours.

IE334 Machine Organization/ Assembly Language
Prerequisite: IE224 or 225 or 226. Study of the functional characteristics of computers and their peripherals. Programming in assembly language. Topics: data representation, error flags, addressing techniques, macros, file I/O, program linkage, interrupts. Laboratory Fee. 3 credit hours.

IE335 Simulation and Applications
Prerequisite: IE224 or IE228. Techniques for mathematical modeling of a system (business or scientific/engineering) using computer simulation. Simulation principles will be emphasized. Student exercises and projects will be run using SLAM. Laboratory Fee. 3 credit hours.

IE337 Introduction to Data-Base Systems
Prerequisite: IE237. The development, structure, capabilities and use of data-base systems; their benefits and costs. Topics include what they do and how it is accomplished, data structures, privacy and security, comparison of typical DB systems. 3 credit hours.

IE339 Structure of Programming Languages and Compilers
Prerequisites: IE226 and IE334. Study of the properties of and relationships among: machine code, assembly language and high level languages; constructs in high level languages and their object code implementations. Assemblers, interpreters and compilers. Translation processes, including lexical, syntactic and semantic phases. Programming in Pascal may be required. Computer Use Fee. 3 credit hours.

IE340 Comparative Programming Languages
This course will teach you how to learn a new programming language. The structure, syntax and semantic aspects of several languages are studied. Short programs will be written in four languages. Laboratory Fee. 3 credit hours.

IE344 Advanced Work Analysis
Prerequisite: IE243. A course extending the principles introduced in the prerequisite course including the development of standard data systems, formula construction in standard data, methods-time-measurement and master standard data predetermined time system, work sampling, standards on indirect work, wage payment plans and the use of closed-circuit television as a methods training tool. Also computer assisted data gathering and analysis is covered. Laboratory Fee. 3 credit hours.

IE346 Probability Analysis
Prerequisite: M118. Develops the theory of probability and related applications. Covers combinations and permutations, probability space, law of large numbers, random variables, conditional probability, Bayes' Theorem, Markov chains and stochastic processes. (Not considered acceptable for meeting A.B.E.T. mathematics requirements in the electrical and mechanical engineering programs.) 3 credit hours.

IE347 Statistical Analysis
Prerequisite: IE346. Provides an introduction to the application of statistical techniques to industrial and engineering problems. Measures of central tendency and dispersion, estimation, hypothesis testing, correlation and regression, elementary analysis of variance. 3 credit hours.

IE348 Manufacturing Processes
Mill and manufacturing processes. The casting of metals, pattern making and mold preparing. Fabricating, metal cutting and welding. Demonstrations, laboratory and inspection trips to local manufacturing plants. 3 credit hours.

IE402 Operations Research
Prerequisite: IE346. The operations research area is oriented to various mathematical methods for solving certain kinds of industrial problems. Topics included are: linear programming, including simple method; transportation and assignment problems; queueing; dynamic programming; simulation. 3 credit hours.

IE407 Systems Analysis (General)
Prerequisite: junior status. MG 125 or equivalent. Presents the analytical and conceptual techniques upon which systems analysis and development is based, and applications to non-business as well as business operations. Development of case studies and their applications independently oriented to the student's major area of interest. 3 credit hours. (Not for IE or CS majors.)

IE408 Systems Analysis (Engineering)
Prerequisites: IE214, M115. Presents the analytical and conceptual techniques upon which systems analysis and development is based, and applications to business and industrial fields. Development of case studies and their application, oriented to the student's major area of interest. 3 credit hours.

IE410 Simulated Organizational Problem Solving
Prerequisites: IE214, IE347. This course gives the student the opportunity to correlate his entire course of study in a management simulation framework. The exercises make use of simulation models that explore specific management areas in depth. Operations research techniques of scientific management are developed. 3 credit hours.

IE420 Software Design and Development
This course will bring together ideas and skills learned in the preceding courses. It includes methods for design, optimization and debugging, interfacing with users and with the computing environment, and documentation. These issues are dealt with on a mature level in order to prepare students for future jobs. A large project will be designed and implemented by the class. Laboratory Fee. 3 credit hours.

IE425 Principles of Computer Graphics
Development and implementation of the fundamental algorithms of computer graphics. Topics covered will include 2-D viewing, geometric transformations, clipping, segmentation, curves, user interaction, and an in troduction to 3-D viewing and surfaces. Laboratory Fee. 3 credit hours.

IE436 Quality Control
Prerequisite: IE347. Economics of quality control; modern methods used by industry to achieve quality of product; preventing defects; organizing for quality; locating chronic sources of trouble; coordinating specifications, manufacturing and inspection; measuring process capability; using inspection data to regulate manufacturing processes; statistical methods, control charts, selection of modern sampling plans. 3 credit hours.

IE443 Facilities Planning
Prerequisites: IE243, IE204. Factors in plant location, design and layout of equipment. The basic principles of obtaining information essential for carrying out such investigations. Survey of necessary functions of materials handling, storage and storeroom maintenance and use of service departments in modern factories. Laboratory Fee. 3 credit hours.

IE478 Artificial Intelligence/LISP
Prerequisite: IE224 or IE226. For computing majors. Objectives: to teach the concepts, syntax and procedures of the LISP language and to acquaint the student with the present capabilities of artificial intelligence. The course will investigate, through programming projects, those methods of logic and mathematics pertinent to AI research. Topics: expert systems, minimax search, alpha-beta pruning, question answering systems, game trees, learning machines. Laboratory Fee. 3 credit hours.

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IE504 Senior Project
Prerequisite: senior status and permission of the department. The student, in conjunction with a faculty advisor, selects and works on a project. Work is presented at a seminar at the end of the semester. 3 credit hours.

IE599 Independent Study
Prerequisite: consent of the instructor and chairman of the department. Opportunity for the student to explore an area of interest under the direction of a faculty member. Course must be initiated by the student.

International Business

IB312 International Business
Analysis of business environments with special emphasis on similarities and differences among the nations of the world, and views toward developing intercultural managerial effectiveness. 3 credit hours.

IB321 Operation of the Multinational Corporation
Prerequisite: IB312. Specific problems encountered by multinational firms. Topics include investment decisions, planning and control and the social responsibilities of firms in host nations. 3 credit hours.

IB549 International Business Policy
Prerequisite: MK413, junior standing. Identification and relation of the elements involved in the dynamics of a company and its international environment through case analysis. This is a capstone course in international business. 3 credit hours.

IB599 Independent Study
Prerequisite: IB312, junior standing. A planned program of individual study under the supervision of a member of the faculty. 3 credit hours.

Journalism

J101 Journalism I
A survey of journalism designed to acquaint students with the profession. The American newspaper as a social institution and a medium of communication. 3 credit hours.

J102 Journalism II
Prerequisite: J101. The basic principles of journalism and the organizational patterns of the mass media. Some practice in reporting and the writing of news and feature stories. 3 credit hours.

J201 News Writing and Reporting
Prerequisites: J101, J102. The elements of news, the style and the structure of news stories, news-gathering methods, copyreading and editing, reporting. 3 credit hours.

J202 Advanced News Writing and Reporting
Prerequisite: J201. Intensive practice in news writing and reporting. 3 credit hours.

J311 The Copy Desk
Intensive practice in copyreading, editing and revising, headline writing, photograph selection, page make-up, and reporting. Regular critiques of the copy-desk work of major newspapers. 3 credit hours.

J351 Journalistic Performance
Students follow the coverage in the media given to selected topics, and prepare to make judgments of the coverage by doing research and becoming knowledgeable about the particular topic chosen. The course stresses analytical reading and responsible, informed criticism. 3 credit hours.

J367 Interpretive and Editorial Writing
Practice in the writing of considered and knowledgeable commentaries on current affairs and in writing of interpretive articles based on investigation, research and interviews. 3 credit hours.

J450-459 Special Topics in Journalism
Special topics in journalism which are of current or special interest.

J599 Independent Study
Prerequisite: consent of the instructor and journalism coordinator. Opportunity for a student, under the direction of a faculty member, to explore an area of interest. 3 credit hours.

Law
(See Business Law)

Management Science

MG100 Introduction to Business
This course will provide students with a fundamental understanding of modern business organization. The introductory section will focus on an overview of the American business system; its economic foundations, ethical environment, legal and organizational framework. The bulk of the course will deal with the principal organizational functions of production, marketing and finance. Specific sub-topics to be studied include an introduction to accounting, data processing, decision making, personnel administration, promotion, public administration, international business, management science and small business administration. Not open to juniors and seniors in the School of Business. 3 credit hours.

MG125 Management and Organization
A study of management systems as they apply to all organizations. Managerial functions, principles of management, and other aspects of the management process are examined. 3 credit hours.

MG200 Business Systems Analysis
Prerequisite: junior standing or consent of the instructor. A survey of the use and application of systems analysis to examine problems of both profit and non-profit business enterprises. Origins of systems analysis, basic concepts, and elements of systems and the systems approach. 3 credit hours.

MG205 EDP Communication and Documentation
Prerequisite: junior standing or consent of the instructor. Presents the necessary skills to document computer software packages. Comparative review of documentation methods, systems and standards now in use, design and preparation of program and system user manuals. 3 credit hours.

MG231 Industrial Relations
Prerequisite: junior standing. A survey of the industrial relations and the personnel management systems of an organization. Manpower planning/forecasting; labor markets; selection and placement; training and development; compensation; government/employer and labor/management relations. 3 credit hours.

MG317 Small Business Management
Prerequisite: junior standing. A realistic examinationn of some of the characteristics, opportunities, risk-taking and decision-making in new business enterprises or self-employment ventures. 3 credit hours.

MG324 Development of Managerial Thought
Prerequisite: MG125. Study of the development of modern management and organization theory. Past and present research in the field will be analyzed and applied to current practices. 3 credit hours.

MG350 Advanced Management
Prerequisite: MG125. A reinforcement of the principles and practices of management and organization theory from MG125. Application of management practices to the functional areas, the human factor in organizations, current research and readings. 3 credit hours.

MG400 Management Planning and Control Systems
Prerequisite: junior standing or consent of the instructor. An examination of current concepts, techniques and working practices necessary to develop and implement a system for management planning and control. Development of tools such as PERT, CPM and other network analysis systems; computer assisted decision making. 3 credit hours.

MG415 Comparative Management
Prerequisites: IB312, MG125. An analysis and examination of management and organizational behavior against a background of diversified cultural and organizational systems. 3 credit hours.

MG450-454 Special Studies in Business
Prerequisite: junior standing. Special studies in business and public administration. Work may include study and analysis of specific problems within units of business or government and application of theory to those problems, programs of research related to a student's discipline, or special projects. Several sessions may run concurrently. 3 credit hours.

MG455 Managerial Effectiveness
Prerequisites: MG324, MG350. An examination of current practices used in identifying and developing effective managers. The problems of the managerial environment, approaches used to alleviate these problems, development of organizational and managerial effectiveness. 3 credit hours.

MG460 Information Systems for Operations and Management
Prerequisite: junior standing or consent of the instructor. A development of the steps necessary to design and implement an integrated information system which can benefit all levels of management. Analysis of information requirements, design approaches, processing methods, data management, organizational and social implications, planning and control systems, analytical and simulation models. 3 credit hours.

MG489 Internship Practicum
Prerequisites: senior standing and consent of the department chairman. A monitored field experience in business or industry subject to academic guidance and review. 3 credit hours.

MG512 Contemporary Issues in Business and Society
Prerequisite: senior standing. A rigorous examination of competing concepts of the role of business in society. A capstone, integrative course relating the firm to its environment including issues arising from aggregate social, political, legal and economic factors. 3 credit hours.

MG515 Management Seminar
Prerequisite: senior standing. An introduction to contemporary publications and the findings of research study reports. Analysis, interpretation and determination of impact of publications on the theory and practice of management. 3 credit hours.

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MG550 Business Policy
Prerequisite: senior standing. An examination of organizational policies from the viewpoint of top-level executives, and a development of analytical frameworks for achieving the goals of the total organization. Discussion of cases and development of oral and written skills. 3 credit hours.

MG556 Operations Management
The design, implementation, operation and control of productive enterprises, whether private or public, profit or non-profit. Integration of system analysis, management science, operations research and management, and organizational theory. 3 credit hours.

MG560 Business Systems Simulation
Prerequisite: QA216. The design, development and application of computer simulation models as tools of analysis for business, economic and electronic computer systems. Deterministic and stochastic decision models, computer simulation using several simulation languages. Computer Use Fee. 3 credit hours.

MG599 Independent Study
Prerequisite: project, student and faculty director must be approved by the department chairman and the dean of the business school. Independent study on a project of interest to the student under the direction of a faculty member designated by the department chairman. 3 credit hours.

Marketing

MK105 Principles of Marketing
Prerequisite: EC133. The fundamental functions of marketing involving the flow of goods and services from producers to consumers. Marketing methods of promotion, pricing, product decisions and distribution channels. 3 credit hours.

MK205 Consumer Behavior
Prerequisite: MK105. A study of the principal comprehensive marketing models which focus on buyer decision processes. Topics include brand switching decisions, measures of media effectiveness, market segmentation and other marketing techniques. 3 credit hours.

MK302 Industrial Marketing
Prerequisite: MK105. Practices and policies in the distribution of industrial goods including purchasing, market analysis, channels of distribution, pricing, competitive practices and operating costs. 3 credit hours.

MK307 Advertising and Promotion
Prerequisite: MK105. The design, management and evaluation of the various communications programs involved in marketing and public relations. 3 credit hours.

MK316 Sales Management
Prerequisite: MK105. The management of a sales organization. Recruiting, selecting, training, supervision, motivation and compensation of sales personnel. 3 credit hours.

MK413 International Marketing Management
Prerequisites: IB312, MK105. Applied marketing decision making in international firms. The development of marketing strategy and techniques in foreign markets. 3 credit hours.

MK442 Marketing Research and Information Systems
Prerequisites: MK105, QA216, junior standing. Research as a component of the marketing information system. Research design, sampling methods, data interpretation and management of the marketing research function. 3 credit hours.

MK460 Consumer Protection
Prerequisites: MK105, junior standing. The socio-legal framework within which consumers make purchase decisions. The focal point of the course is to develop an analytical frameword for evaluating the informational needs of consumers and consistent regulatory policies. 3 credit hours.

MK470 Business Logistics
Prerequisites: MK105, QA118, junior standing. The design and administration of systems to control physical product flows. Both spatial and temporal constraints are treated in the development of transportation, warehousing and manufacturing systems. 3 credit hours.

MK515 Marketing Management
Prerequisites: MK105, MK442, senior standing. The analysis, planning and control of the marketing effort within the firm. Emphasis is on case analysis. This is a marketing capstone course. 3 credit hours.

MK599 Independent Study
Prerequisites: MK105, junior standing. A planned program of individual study under the supervision of a member of the faculty. 3 credit hours.

Mathematics

All prerequisites for the following mathematics courses must be strictly observed unless waived by permission of the mathematics department. Courses marked with a dagger (†) will be offered at the discretion of the department. Courses marked with an asterisk (*) are offered every semester.

***M103 Fundamental Mathematics**
Required at the inception of the program of study of all students (day and evening) who do not show sufficient competency with fundamental arithmetic and algebra, as determined by placement examination. Review and individualized help as needed in the arithmetic of whole numbers, decimals, fractions, and percents. Introduction to sets. Elementary algebra. Topics from logic, probability, and statistics as time permits. (Students placed in M103 must successfully complete this course before taking any other course having mathematical content.) Students who take M103 will have the total number of credits required for graduation increased by 3 credits. 3 credit hours (4 to 6 hours per week).

***M105 Introductory College Mathematics**
Introductory college mathematics for the liberal arts student including a variety of mathematical ideas chosen to illustrate the nature and importance of mathematics in human culture. An inductive approach based on experimentation and discovery. 3 credit hours.

***M109 Elementary College Algebra**
Prerequisite: M103 or placement by the department. A review of the fundamental operations and an extensive study of functions, exponents, radicals, linear and quadratic equations. Additional topics include ratio, proportion, variation, progression and the binomial theorem. 3 credit hours.

***M115 Pre-Calculus Mathematics**
Prerequisite: a grade of C or higher in M109 or placement by the department. Designed to offer the foundation needed for the study of calculus. Polynomials, algebraic functions, elementary point geometry, plane analytic trigonometry and properties of exponential functions. 4 credit hours.

†M116 Survey of Calculus
Prerequisite: M115. An intuitive approach to topics in functions, analytic geometry, differential and integral calculus and probability. Designed for insight into, and appreciation of, the methods of analysis. 3 credit hours.

†M117 Calculus I
Prerequisite: a grade of C or higher in M115 or placement by the department. The first-year college course for majors in mathematics, science and engineering; and the basic prerequisite for all advanced mathematics. Introduces differential and integral calculus of functions of one variable, along with plane analytic geometry. 4 credit hours.

***M118 Calculus II**
Prerequisite: M117. Continuation of first-year calculus, including methods of integration, the fundamental integration theorem, differentiation and integration of transcendental functions and varied applications. 4 credit hours.

M121 Algebraic Structures I
A first course in an orientation to abstract mathematics: elementary logic, sets, mappings, relations, operations, elementary group theory. Open to all freshman and sophomores. 3 credit hours.

†M122 Algebraic Structures II
Prerequisite: M121 or permission of the department. A continuation of M121 including a variety of topics. 3 credit hours.

***M127 Finite Mathematics**
Prerequisite: M103 or placement by the department. Basic discrete functions with numerous applications in the social sciences. Topics include elementary set theory and counting techniques, functions and graphs, an introduction to computing and computers, an introduction to probability. 3 credit hours.

M137 Calculus Topics
Prerequisite: consent of the department. The theoretical material of the standard first year of calculus, including limits, chain rules, mean value theorems and a discussion of the fundamental theorem of integral calculus. Upon successful completion, the student is qualified for M203. 4 credit hours.

***M203 Calculus III**
Prerequisite: M118. The calculus of multiple variables, covering third-dimensional topics in analytics, linear algebra, and vector analysis, plus partial differentiation, multiple integration, infinite series and indeterminate forms. 4 credit hours.

***M204 Differential Equations**
Prerequisite: M203. The solution of ordinary differential equations, including the use of Laplace transforms. Existence of solutions, series solutions, matrix methods, nonlinear equations and varied applications. 3 credit hours.

M228 Elementary Statistics
Prerequisite: one previous course in college mathematics. A noncalculus based course which includes basic probability theory, random variables and their distributions, estimation and hypothesis testing, regression and correlation. Emphasis on an applied approach to statistical theory with applications chosen from many different fields of study. (Not open to students who have taken calculus.) 3 credit hours.

***M231 Linear Algebra**
Prerequisite: M203. Linear spaces and systems, matrices, linear transformations, quadratic forms, eigenspaces and other topics. 3 credit hours.

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M270 Discrete Structures
Prerequisites: M118 and IE102 or IE106. Corequisite: M203. This course introduces the student to the discrete structures underlying the mathematical foundations of computer science. Topics include sets and relations, recursive and inductive procedures, functions, graph theory, groups and semigroups, Boolean algebras, elementary combinatorics, and algorithm analysis. Applications of the above topics to computer science will be studied. 3 credit hours. Offered each spring semester.

†M301 Linear Analysis
Prerequisites: M204, M231. Linear vector spaces, infinite series, transformations, generalized Fourier series, solutions of partial differential equations. 3 credit hours.

M303 Advanced Calculus
Prerequisite: M204. A survey course in applied mathematics. Vector calculus: line and surface integrals, integral theorems of Green and Stokes, and the divergence theorem. Complex variables: elementary functions, Cauchy-Riemann equations, integration, Cauchy integral theorem, infinite series, calculus of residues and conformal mapping. 3 credit hours. Offered each fall semester.

M309 Advanced Differential Equations
Prerequisite: M204. Theoretical analysis and applications of nonlinear differential equations. Phase plane and space, perturbation theory and techniques, series and related methods, stability theory and techniques and relaxation phenomena. 3 credit hours.

M321 Modern Algebra I
Prerequisites: M121, M231. Groups, rings, integral domains, fields, polynomials. 3 credit hours.

†M325 Number Theory
Prerequisite: M121. Topics are selected from the following: mathematical induction, Euclidean algorithm, integers, number theoretic functions, Euler-Fermat theorems, congruence, quadratic residues and Peano axioms. 3 credit hours.

M338-339 Numerical Analysis I and II
Prerequisites: M204, IE102 or IE106. Approximation and error evaluation. Finite difference approximation by polynomial and orthogonal series, solutions of ordinary differential equations; solutions of elliptic, parabolic, and hyperbolic partial differential equations; interpolation and basic integral equation solutions. Computer Use Fee. 6 credit hours.

†M341 Sets and Ordered Structures
Prerequisite: M121. Axiomatic set theory based on the Zermelo-Fraenkel theory, algebra of sets, relations and functions, finite and infinite sets, order, axiom of choice and its equivalents. 3 credit hours.

†M343 Projective Geometry
Prerequisites: M121, M231. Projective transformations, fixed points, invariants, cross-ratio, conics, Euclidean and non-Euclidean geometeries. 3 credit hours.

†M345 Tensor Analysis
Prerequisites: M204, M231. The properties of vectors and tensors in Cartesin and in general curvilinear coordinate systems. Topics covered include: invariance properties, transformation laws, calculus of tensors, covariant differentiation, surface theory. Applications are considered in areas such as rigid body dynamics, elasticity, fluid mechanics, electricity and magnetism and geometry. 3 credit hours.

M361 Mathematical Modeling
Prerequisites: M231 and at least junior standing. Problem solving through mathematical model building. Emphasis on applications of mathematics to the social, life and managerial sciences. Topics are selected from probability, graph theory, Markov processes, linear programming, optimization, game theory, simulation. Computer Use Fee. 3 credit hours. Spring 1985.

M371 Probability and Statistics I
Prerequisite: M203. Axiomatic study of probability: sample spaces, combinatorial analysis, independence and dependence, random variables, distribution functions, moment generating functions, central limit theorem. 3 credit hours. Offered each fall semester.

†M381 Real Analysis I
Prerequisites: M121, M203. Foundations of analysis, sets and functions, real and complex number systems; limits, covergence and continuity, sequences and infinite series, differentiation. 3 credit hours.

M403 Techniques in Applied Mathematics
Prerequisite: M204.Techniques in applied analysis including Fourier series; orthogonal functions such as Bessel functions, Legendre polynomials, Chebychev polynomials, Laplace and Fourier transforms; product solutions of partial differential equations and boundary value problems. 3 credit hours.

†M412 Real Analysis II
Prerequisite: M381. Continuation of M381 including Riemann-Stieltjes integration theory and an introduction to measure theory and the Lebesque integral. 3 credit hours.

†M422 Modern Algebra II
Prerequisite: M321. Continuation of M321 including topics such as: vector spaces, modules, commutative ring theory, Galois theory. 3 credit hours.

†M423 Complex Variables
Prerequisite: M204. For mathematics, science and engineering students. Review of elementary functions and Euler forms; holomorphic functions, Laurent series, singularities, calculus of residues, contour integration, maximum modulus theorem, bilinear and inverse transformation, conformal mapping, and analytic continuation. 3 credit hours.

†M441 Topology
Prerequisite: M381. Topics selected from the following: Hausdorff neighborhood relations; derived, open and closed sets; closure; topological space; bases; homeomorphisms; relative topology; product spaces; separation axioms; metric spaces; connectedness and compactness. 3 credit hours.

M472 Probability and Statistics II
Prerequisite: M371. Elements of the theory of point estimation, maximum likelihood estimates, theory of testing hypotheses, power of a test, confidence intervals, linear regression, experimental design and anaysis of variance, correlation, and nonparametric tests. 3 credit hours.

M491-499 Department Seminar
A study of a mathematical topic or topics not covered in the above courses. Subject of study will be announced by the mathematics department in advance. A paper and/or seminar talk, suitable for presentation to all interested mathematics faculty, will be required. 3 credit hours.

M599 Independent Study
Prerequisite: consent of faculty member and chairman of department. Oportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Materials Technology

MT200 Engineering Materials
Prerequisite: CH103. A study of the properties of the principal engineering materials of modern technology: steels and nonferrous alloys and their heat treatment, concrete, wood, ceramics and plastics. Gives engineers sufficient background to aid them in selecting materials and setting specifications. 3 credit hours.

MT219 Physical Metallurgy
Prerequisite: CH105. Introduction to the relationships between atomic structure and macroscopic properties such as mechanical strength and ductility. Atomic bonding, crystallography, phase equilibrium and phase transformations are among the topics considered. 3 credit hours.

MT220 Electronic Materials
Prerequisite: PH205. Study of transport and rearrangement of charge to determine electric and magnetic properties of solids. Semiconductors, superconductors and magnetic materials are among the topics considered. 3 credit hours.

MT301 Welding Metallurgy
Prerequisite: MT219. Study of welding and brazing procedures of ferrous and nonferrous alloys, with consideration of macro and microstructures of welded members. 3 credit hours.

MT302 Polymeric Materials
Prerequisite: CH105. Chemistry and physical properties of rubber and plastic materials. Consideration of both fundamental principles and engineering applications. 3 credit hours.

MT304 Mechanical Behavior of Materials
Prerequisite: MT219. Detailed study of elastic and plastic deformation of materials at room temperature and elevated temperatures. Dislocation theory and microplasticity models considered. 3 credit hours.

MT310 Materials Laboratory
Prerequisite: MT219. Laboratory documentation of the effects of heat treatment in annealing and hardening both ferrous and nonferrous materials. Microscopic observation and photography. Other experiments in materials engineering. Laboratory Fee. 3 credit hours.

MT324 Nuclear Reactor Materials
Prerequisite: MT219. Consideration of nuclear reactors, the production and fabrication of metals and alloys used as reactor components, non-destructive testing and radiation damage of materials. 3 credit hours.

MT331 Nonferrous Metallurgy
Prerequisite: MT219. The physical metallurgy of aluminum, copper, magnesium and other nonferrous metals. Alloying, fabrication and consideration of materials properties which make nonferrous metals competitive with steels. 3 credit hours.

MT342 Steels and Their Heat Treatment
Prerequisite: MT219. Fundamentals of ferrous physical metallurgy such as iron-carbon phase diagram, transformation diagrams, hardenability and the effects of alloying elements. Heat treating discussed in terms of resulting microstructures and physical properties. 3 credit hours.

MT400 Materials Reactions
Prerequisite: MT219. Consideration of chemical reactions in the liquid and solid state of importance to the field of materials engineering. Topics to include extractive metallurgy, internal oxidation, surface treatment and recycling of secondary. materials. 3 credit hours.

COURSES

MT500 Research Project
Prerequisites: MT331, MT342, senior status. An independent design, theoretical analysis or laboratory investigation, chosen by the student and approved by the chairman of the department. The work is performed by the student with frequent critiques by a faculty member. 3 credit hours.

Mechanical Engineering

ME101 Engineering Graphics
An introduction to the principles and techniques of graphic communication. Fundamentals of orthographic projections; sections; applied geometry; auxiliary views; analysis of point, line and plane relationships; detail and assembly drawing of simple machine parts. 3 credit hours.

ME102 Engineering Drawing and Design
Prerequisite: ME101. For technical students and draftsmen, covering layout of assembly drawings; detailing of their parts, properly dimensioned, for interchangeable manufacture; use of ASA tables of metal fits for machine parts; use of threads and fasteners with the use of tolerances and limits. 3 credit hours.

ME204 Dynamics
Prerequisites: CE201 or CE205, M118 (M118 may be taken concurrently). Kinematics and dynamics of particles and rigid bodies with emphasis on two dimensional problems. Vector representation of motion in rectangular, polar and natural coordinates. Impulse-momentum and work-energy theorems. Rigid bodies in translation, rotation and general plane motion. 3 credit hours.

ME215 Instrumentation Laboratory
Laboratory experiments introducing the electromechanical equipment and measurement techniques used to determine temperature, stress, fluid flow and other parameters of concern to the mechanical engineer. Note: Students are charged for a standard three-credit hour course. Laboratory Fee. 2 credit hours.

ME301 Thermodynamics I
Prerequisite: M118. Classical thermodynamics treatment of first and second laws. Thermal and caloric equations of state. Closed and open systems, and steady flow processes. Absolute temperature, entropy, combined first and second laws. Power and refrigeration cycles. 3 credit hours.

ME302 Thermodynamics II
Prerequisites: ME301, M203 (M203 may be taken concurrently). Extensions and applications of first and second laws; availability, combustion process, phase and chemical equilibrium, ideal gas mixtures. Maxwell's relations. Introduction to statistical thermodynamics. Advanced thermodynamic cycles. 3 credit hours.

ME307 Strength of Materials II
Prerequisite: CE202. Elastic and plastic behavior of structural elements such as beams, columns and shafts under direct and combined loading. Ultimate strength design, theory of failure, composite member design and an introduction to indeterminate structures. 3 credit hours.

ME311 Machine Elements
Prerequisite: CE202. Analysis and design of machine elements to meet specified operating conditions. Stresses, deformations and other factors in design of machine parts. Static theories of failure. Fatigue strength, endurance limit and fatigue design methods via Soderberg and Goodman diagrams. Finite life design. Application to machine elements such as screws, bolts, ball and roller bearings, clutches and brakes. 3 credit hours.

ME312 Mechanical Design
Prerequisite: ME311 or instructor's consent. Continuation of ME 311. Topics include shaft design, springs, hydrodynamic lubrication, gears. 3 credit hours.

ME315 Mechanics Laboratory
Prerequisites: CE202, ME204. Students conduct selected tests in the fields of mechanics of materials and vibrations. Emphasis placed on organization of the experiment, measurement techniques, sources of error and organization of the report. Note: Students are charged for a standard three-credit-hour course. Laboratory Fee. 2 credit hours.

ME343 Mechanisms
Prerequisite: ME204 Graphic and analytical methods for determining displacements, velocities and accelerations of machine components. Application to simple mechanisms such as linkages, cams, gears. 3 credit hours.

ME344 Mechanics of Vibration
Prerequisites: ME204, M204. The mathematical relationships necessary for the solution of problems involving the vibration of lumped and continuous systems; damping; free and forced motions; resonance; isolation; energy methods; balancing; single, two and multiple degrees of freedom; vibration measurement. 3 credit hours.

ME401 Mechanical Systems Analysis
Prerequisites: ME204, M204. Dynamic systems and their characteristics. Analogy of electrical, mechanical and other systems. Mixed systems; dimensional analysis; design considerations. 3 credit hours.

ME403 Introduction to Flight Propulsion

Prerequisites: ME422, instructor's consent. A senior course designed for those students who intend to work or pursue further studies in the aerospace field. Among the topics covered are: detonation and deflagration, introductory one-dimensional nonsteady gas flows, basic concepts of turbomachinery and survey of the contemporary propulsive devices. Shock tubes, supersonic wind tunnels and flame propagation demonstrations accompany the lectures. 3 credit hours.

ME404 Heat and Mass Transfer

Prerequisites: ME302, ME421, M204. Conduction in solids, solution of multi-dimensional conduction problems, unsteady conduction, radiation, boundary layer and convection. Introduction to mass transfer. The lectures include occasional demonstrations of convection, radiation, heat exchangers. 3 credit hours.

ME405 Advanced Mechanical Design

Prerequisite: ME421. Selected and advanced topics related to the design of machine elements such as hydrodynamic theory of lubrication and principles of hydraulic machines with application to hydraulic couplings. 3 credit hours.

ME406 Turbomachinery

Prerequisites: ME302, ME421. Review of basic thermodynamics and fluid mechanics. Dimensional analysis. Specific speed. Classification of turbomachines. Cavitation. Losses. Definitions of efficiency. Theories of turbomachines. Design considerations for stator blades and rotor blades. Computer-aided design. 3 credit hours.

ME407 Solar Energy Thermal Processes

Prerequisite: ME404 (may be taken concurrently). Introduction to the fundamentals of solar energy thermal processes including solar radiation, flat plate and focusing collectors, energy storage, hot water heating, cooling and auxiliary system components. Emphasis on the design and evaluation of systems as they pertain to commercial and residential buildings. 3 credit hours.

ME408 Advanced Mechanics

Prerequisites: ME204, M204. Plane and spatial motion of particles and rigid bodies, inertia tensor, relative motion, gyroscopes, central force motion. Lagrangian and Hamiltonian methods. 3 credit hours.

ME410-411 Introduction to Nuclear Engineering I and II

Prerequisite: M204. The fundamental scientific and engineering principles of nuclear reactor systems. Reactor design and behavior related to fission process, its associated radiations and engineering principles. 6 credit hours.

ME415 Thermo/Fluids Laboratory

Prerequisites: ME302, ME421, ME404 (ME404 may be taken concurrently). A survey of experiments and laboratory investigations covering the areas of fluid mechanics, thermodynamics, heat transfer and gas dynamics. Note: Students are charged for a standard three-credit-hour course. Laboratory Fee. 2 credit hours.

ME421 Fluid Mechanics

Prerequisites: ME204, M204. Fluid kinematics; continuity equation, vector operations. Momentum equation for frictionless flow; Bernoulli equation with applications. Irrotational flow; velocity potential, Laplace's equation, dynamic pressure and lift. Stream function for incompressible flows. Rotational flows; vorticity; circulation, lift and drag. Integral momentum analysis. Navier-Stokes equation; stress tensor. Newtonian fluid. Boundary layer approximations. 3 credit hours.

ME422 Introduction to Gas Dynamics

Prerequisites: ME302, ME421 (ME421 may be taken concurrently). Compressible fluid flow with emphasis on one-dimensional ducted steady flows with heat transfer, frictional effects, shock waves and combined effects. Introductory considerations of two- and three-dimensional flows. Occasional demonstrations accompany the lectures. 3 credit hours.

ME512 Senior Seminar

Open to seniors with chairman's approval. Individual oral presentations by students of material researched on topics selected by students and faculty at the beginning of the term. 3 credit hours.

ME599 Independent Study

Prerequisites: consent of faculty supervisor and approval of department chairman. Independent study provides an opportunity for the student to explore an area of special interest under faculty supervision. 1-3 credit hours per semester with a maximum of 12.

COURSES

Occupational Safety and Health

SH100 Safety Organization and Management
History and development of safety movement, nature and extent of problem, development of workmen's compensation, development of safety program, cost analysis techniques, locating and defining accident sources, analysis of the human element, employee training, medical service and facilities and the what and how of the Occupational Safety and Health Act. 3 credit hours.

SH110 Accident Conditions and Controls
Prerequisite: SH100. Mechanical hazards, machine and equipment guarding, boilers and pressure vessels, structural hazards, materials handling hazards and equipment use, electrical hazards, personal protective equipment. 3 credit hours.

SH200 Elements of Industrial Hygiene
Prerequisites: PH103, SH110, CH103, or CH115. Analysis of toxic substances and their effect on the human body. Analysis and effect of chemical hazards, physical hazards of electromagnetic and ionizing radiation, abnormal temperature and pressure, noise, ultrasonic and low-frequency vibration; sampling techniques including detector tubes, particulate sampling, noise measurement and radiation detection; governmental and industrial hygiene standards codes. 3 credit hours.

SH210 Sound-Hearing-Noise
Prerequisite: SH200. An analysis of three major factors associated with the noise issue viz, the physics of the nature of sound, the biological phenomenon of hearing, and the engineering processes of noise abatement including a review of the OSHA legal standards for noise exposure. 3 credit hours.

SH400 Occupational Safety and Health Legal Standards
Prerequisite: SH100. All aspects of the legal constraints applicable to the occupational safety field are examined. Included are OSHA, federal laws not under OSHA jurisdiction, selected state legislation, current and pending product liability laws, environmental protection law and fire safety codes. Consideration will be made for emphasizing particular legal areas as requested. 3 credit hours.

SH598 Co-op Training—In-Process Registration
Prerequisite: Satisfactory completion of freshman year with a minimum QPR of 2.7. Through the cooperation of area employers, students alternate between school and work periods in the field of occupational safety & health. During the working period, the student must conform to the employer's work rules. Pay rates and other benefits are subject to individual negotation and not regulated by the university. Third semester employment during the summer may be arranged. No direct credits are given, but Independent Study (SH599) may be developed in connection with job assignment. Registration charge $100.

SH599 Independent Study
Prerequisites: consent of faculty member and chairman of department. Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Philosophy

PL201 Philosophical Methods
Logic applied to analyzing and solving practical problems related to the individual and environment, the natural and social sciences, the humanities and the other areas of philosophy. Fall and spring semester. 3 credit hours.

PL205 Classical Philosophy
The origins of philosophy in the West, and the continuing influence of classical thought on the development of ideas. Fall semester. 3 credit hours.

PL206 Modern Philosophy: Descartes to the Present
Philosophical theories that have dominated the modern age. Stress on a central figure of the period. Spring semester. 3 credit hours.

PL210 Logic
Modern symbolic logic and its applications. 3 credit hours.

PL213-214 Contemporary Issues in Philosophy
Current philosophical thinking on some particular issue in an area such as natural science, social science, metaphysics, religion, aesthetics, ethics, theory of knowledge or language. Fall or spring semester. 3 credit hours each.

PL222 Ethics in a Changing Society
The major ethical systems in the framework of contemporary society. Ethical norms and their relation to human activities. Fall semester. 3 credit hours.

PL223 Ethics and Business
How ethics and other values function in their relation to business enterprise. Spring semester. 3 credit hours.

PL240 Philosophy of Science and Technology
Scientific method, the logic of scientific explanation, the application of science to practical problems, and questions peculiar to the social sciences. Fall semester. 3 credit hours.

PL250 Philosophy of Religion
An examination of some philosophical notions used in religious discourse, such as meaning, truth, faith, being, God, the holy. Spring semester. 3 credit hours.

PL254 Philosophy and Human Relationships
Philosophical questions about human relationships and the nature of the person. Applications to such contemporary issues as: feminism and sexism; love and sexual relationships; marriage and the family; relationships between professionals and clients; barriers of background, race or belief. 3 credit hours.

PL256 Analysis and Criticism of the Arts
The language used to talk about works of art: form, content, expression, value and the ontological status of the art object. Spring semester. 3 credit hours.

PL260-261 Religious Intellectual Traditions
Philosophical issues within particular religious commitments. 3 credit hours.

PL599 Independent Study
Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be initiated by the student. Fall or spring semester. 1-3 credit hours with a maximum of 12.

Physics

PH100 Introductory Physics
Primarily for liberal arts and business students interested in a broad, non-mathematical understanding of physics. Emphasis on the basic concepts of physics, their application to our everyday environment and their impact on society. 3 credit hours.

PH101 Energy—Present and Future
Intended primarily for business and liberal arts students. Explores the nature, role and economic impact of energy in our society. Topics include: the nature and growth of energy consumption, physical limits to energy production and consumption, environmental effects and comparisons of energy alternatives. Special emphasis on the technical, environmental and economic aspects of nuclear power as well as energy sources of the future such as fast breeder reactors, fusion, solar and geothermal power. 3 credit hours.

PH103-104 General Physics I and II
Primarily for life science majors with no calculus background. Basic concepts of classical physics: fundamental laws of mechanics, heat, electromagnetism, optics, and conservation principles. Introduction to modern physics: relativity and quantum theory, atomic, nuclear and solid-state physics. Application of physical principles to life sciences. 6 credit hours.

PH105-106 General Physics Laboratory I and II
Should be taken concurrently with PH103-104. Laboratory Fee. 2 credit hours.

PH130 Radiation Safety
Intended for students in occupational safety and hygiene, fire science, forensic science and related fields, as well as science and engineering students with interests in this area. Topics include: the nature of radiation and radioactivity, the interaction of radiation with matter, biological effects of radiation, detection and measurement of radiation, shielding considerations, dosimetry, and standards for personal protection. 3 credit hours.

PH140 Radioactivity Laboratory Technique
Prerequisite: one semester of laboratory science. Provides a practical working knowledge of radioactivity techniques to students in any branch of science engineering or forensics, or to anyone wishing knowledge of the role of nuclear technology today. Experiments may be completed in biology, chemistry, engineering, forensics or physics, according to the interest of the student. Laboratory Fee. 2 credit hours.

PH150 Mechanics, Heat and Waves with Laboratory
Prerequisites: M117 or instructor's consent (M117 may be taken concurrently). Introductory course for physical science and engineering majors. Kinematics, Newton's laws, conservation principles for momentum, energy and angular momentum. Thermal physics. Basic properties of waves, simple harmonic motion, super-position principle, interference phenomena and sound. Laboratory Fee. 4 credit hours.

COURSES

PH205 Electromagnetism and Optics with Laboratory
Prerequisites: PH150, M118 (M 118 may be taken concurrently). Basic concepts of electricity and magnetism; Coulomb's law, electric field and potential, Gauss's law, Ohm's law, Kirchoff's rules, capacitance, magnetic field, Ampere's law, Faraday's law of induction, Maxwell's equations, electromagnetic waves. Fundamentals of optics; light, laws of reflection and refraction, interference and diffraction phenomena, polarization, gratings, lenses and optical instruments. Laboratory Fee. 4 credit hours.

PH211 Modern Physics
Prerequisite: PH104 or PH205. Modern physics fundamentals. Twentieth-century developments in the theory of relativity and the quantum theory. Atomic, nuclear, solid-state and elementary particle physics. 3 credit hours.

PH270 Thermal Physics
Prerequisite: PH103 or PH150. Basic thermodynamics and its applications. Major emphasis on the efficiency of energy conversion and utilization. Topics include: the laws of thermodynamics, entropy, efficiency of heat engines, solar energy, the energy balance of the earth, energy systems of the future, economics of energy use. 3 credit hours.

PH280 Lasers
Prerequisite: PH104 or PH205. Laser theory, holography, construction and application to latest engineering and scientific uses. 3 credit hours.

PH285 Modern Optics
Prerequisites: PH104 or PH205. Introduction to optical theories. Topics on the latest developments in optics. Application to life sciences and engineering. 3 credit hours.

PH301 Analytical Mechanics
Prerequisites: M150, M204, or instructor's consent. Intermediate analytical mechanics. Statics and dynamics of particles and rigid bodies. Emphasis on the theory of motion under central forces and on the use of the generalized coordinates; introduction to an elementary Lagranian and Hamiltonian formalism; small vibrations. 3 credit hours.

PH351 Intermediate Electricity and Magnetism
Prerequisites: PH205, M204. Electric field and potential using vector field formalism. Boundary conditions. Poisson's and Laplace's equations. Electromagnetic fields in cavities and weaveguides. Electromagnetic waves. 3 credit hours.

PH373 Advanced Laboratory
Prerequisite: PH211. Selected experiments in atomic, nuclear, and solid state physics. Laboratory Fee. 2 credit hours.

PH400 Statistical Mechanics
Prerequisite: instructor's consent. An introductory course in classical and quantum statistical mechanics. The canonical ensemble: Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac statistics and their applications; statistical interpretation of thermodynamics; transport processes. 3 credit hours.

PH401 Atomic Physics
Prerequisite: PH211. Structure and interactions of atomic systems including Schrodinger's equation, atomic bonding, scattering and mean free path, radiative transitions and laser theory. 3 credit hours.

PH404 Senior Project
Open to senior physics majors. Individual projects in experimental or theoretical physics to be carried out under direct supervision of a faculty advisor. 1-6 credit hours.

PH406 Solid-State Physics
Prerequisite: PH211. Introduction to the physics of solids with emphasis on crystal structure, lattice vibrations, band theory, semiconductor, magnetism and superconductivity. Applications to semiconductor devices and metallurgy. 3 credit hours.

PH415 Nuclear Physics
Prerequisite: PH211 or instructor's consent. Elementary nuclear physics. Nuclear structure, natural radioactivity, induced radioactivity nuclear forces and reactions, fission and fusion, reactors and topics of special interest. 3 credit hours.

PH451 Elementary Quantum Mechanics
Prerequisite: PH211 or instructor's consent. An elementary treatment of nonrelativistic quantum mechanics. Schrodinger's equation with its applications to atomic and nuclear structure; collision theory; radiation; introductory perturbation theory. 3 credit hours.

PH470 Theory of Relativity
Prerequisite: PH211 or instructor's consent. Introduction to Einstein's theory of relativity. Special theory of relativity; Lorentz transformations, relativistic mechanics and electromagnetism. General theory of relativity; equivalence principle, Einstein's three tests, graviton, black hole and cosmology. 3 credit hours.

PH599 Independent Study
Prerequisites: consent of faculty member and chairman of department. Opportunity for the student under the direction of a faculty member to explore an area of personal interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Political Science

†Institute of Law and Public Affairs courses

PS 101 Introduction to Politics
A basic course for political science majors and for those interested in understanding politics; political components found in man; power, myths, community, obligation, equality, authority, change and justice. 3 credit hours.

PS 121 American Government and Politics
A basic study of the American political system. Constitutional foundations, the political culture, Congress, the Presidency, the judicial system, political parties, interest groups, individual liberties, federalism, the policy-making process. 3 credit hours.

PS 122 State and Local Government and Politics
Problems of cities, revenue sharing, community power structures, welfare, public safety, the state political party, big-city political machines, interest groups, state legislatures, the governor, the mayor, courts and judicial reform. 3 credit hours.

PS 201-202 Women and the Political Process
The impact of women on the economic, social and political process; problems of integration and equalitarianism. 3 credit hours.

PS 203 American Political Thought
Pre-revolutionary and revolutionary political thought; classical conservatism, liberalism, Jacksonian democracy, civil disobedience, social Darwinism, progressive individualism and pluralism. 3 credit hours.

PS 205 The Politics of the Black Movement in America
The political development of the Black movement in America emphasizing ideological, legal and cultural perspectives. 3 credit hours.

PS 216 Urban Government and Politics
A study of the urban political process. Structures and organizations of urban governments, decision making, public policy, the "urban crisis," crime and law enforcement, party politics and elections, taxation and spending patterns, environmental problems, management of urban development. 3 credit hours.

PS 222 United States Foreign Policy
Quantitative and qualitative examination of the foreign policy process; strategy and tactics of a super power in the twentieth century and the determinants of foreign and military policy. 3 credit hours.

†PS 224 Public Attitudes and Public Policy
A study of the sources of mass political attitudes and behavior and their effect upon public policy. The course will examine the techniques for influencing opinion including propaganda and mass media communications. 3 credit hours.

†PS 225 Political Communication
The dynamics of preparing effective public messages. The theory and application of social techniques to political persuasion; talks to win attention, secure action and overcome prejudice. Other topics to be considered are the choice, arrangement and adaptation of materials; audience analysis and motivation. 3 credit hours.

†PS 226 Family Law
A study of legal relations between husband and wife including marriage, annulment, divorce, alimony, separation, adoption, custody arrangements and basic procedures of family law litigation. 3 credit hours.

†PS 228 Legal and Public Interest Groups
This course will examine, through readings and field trips, various institutions in the legal culture. Emphasis on the purpose and function of each organization and on vocational opportunities. Among the institutions to be studied are the private and public interest law firm, administrative agencies, the New Haven Legal Assistance Corporation, the public defender's office, the state and local legislatures and state and federal courts. 3 credit hours.

†PS 229 Legal Communications
This course seeks to familiarize students with the kinds of legal documents and written instruments employed by participants in the legal process. Students will learn to recognize and understand the purpose of writs, complaints, briefs, memoranda, contracts, wills and motions. 3 credit hours.

†PS 230 Anglo-American Jurisprudence
This course will survey ideas about the nature of law. Among the legal philosophers examined will be Plato, Aristotle, St. Thomas Aquinas, John Austin, William Blackstone, Benjamin Cardozo, L.A. Hart and Oliver Wendell Holmes. The contribution to legal theory made by various schools of jurisprudence (e.g., positivism, legal realism) will also be examined. 3 credit hours.

†PS 231 Judicial Behavior
Examination of the American court system as a political policy-making body. Topics considered include: the structure of the judicial system, the influence of sociological and psychological factors on judicial behavior and the nature and impact of the judicial decision-making process. 3 credit hours.

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PS 232 The Politics of the First Amendment
Prerequisite: PS 121. Examination of the political implications of the First Amendment freedoms of speech, press and religions; Supreme Court adaptation of the First Amendment to changing political social conditions. 3 credit hours.

†PS 238 Legal Procedure I
This course is designed to provide a practical knowedge of civil procedure for the pre-law and paralegal student. The student will follow the complete course of a lawsuit, comparing the procedural rules of Connecticut with the Federal Rules of Civil Procedure. Taught from the point of view of a practicing lawyer, pleadings, motions and legal definitions will be introduced and examined for their practical effect on the conduct of a lawsuit. 3 credit hours.

†PS 239 Legal Procedure II
An introduction to litigation techniques and procedures, including skills needed to interview clients, negotiate settlements, take depositions and prepare for trial. Students will learn trial procedures and strategies by participating in a mock trial. 3 credit hours.

†PS 240 Legal Bibliography and Resources
An introduction to legal bibliographic materials. Students will learn how to use various kinds of law books in solving research problems incident to advising clients and trying and appealing cases. The function of court reports, statutes, codes, digests, citators, loose-leaf services and treatises will be discussed. 3 credit hours.

PS 241 International Relations
Forces and structures operating in the modern nation state system; the foreign policy process; decision-making process; the impact of decolonization on traditional interstate behavior; economic and political developments since World War II. 3 credit hours.

PS 243 International Law and Organization
Prerequisite: PS 241. Traditional and modern approach to international law and organization; major emphasis on the contribution of law and organization to the establishment of a world of law and world peace. The League of Nations system and the United Nations system are analyzed. 3 credit hours.

†PS 244 Estates and Trusts
An examination of the legal principles and techniques of effective estate planning and administration. Topics covered include inheritance statutes, preparation and execution of wills, trust and estate accounting and record keeping practices. 3 credit hours.

PS 261 Modern Political Analysis
Introduction to the new approach of political analysis; personality and politics; political socialization; role and group theory; decision making; systems analysis and political violence. 3 credit hours.

PS 264 Political Development of the Third World
Political climate of new states; problems of political unity and national integration, regionalism, nationalism, imperialism; political structures, problems of leadership and decision making. 3 credit hours.

PS 281 Comparative Political Systems: Asia
Traditional and modern political and social structures of China, Japan and Korea and other Asian states including the function of the political system within each country. 3 credit hours.

PS 282 Comparative Political Systems: Europe
Political characteristics of modern European states. Emphasis on political, social and economic institutions, structures, the impact of modern European developments on integration. France, Germany, United Kingdom, USSR, Yugoslavia, Czechoslovakia, Sweden and Switzerland. 3 credit hours.

PS 283 Comparative Political Systems: Latin America
Political modernization, development in Latin America, political institutions, national identity, leadership, integration, political socialization and political ideologies. 3 credit hours.

PS 284 Comparative Political Systems: Africa
Colonial background; constitutional framework. Political institutions and governmental structures of African states. 3 credit hours.

PS 285 Comparative Political Systems: Middle East
Colonial background, legal framework of nationhood; political, social and economic structures of development. Turkey, Egypt, Lebanon, Syria, Jordan, Iraq and Iran. 3 credit hours.

PS 304 Political Parties
Prerequisite: PS 121. Voting and electoral behavior; nominations and campaign strategy; pressure groups; political party structure and functions of the party system in the American political community. 3 credit hours.

PS 308 Legislative Process
Prerequisite: PS 121. Legislative process in the American political system; legislative functions; selection and recruitment of candidates; legislative leadership, the committee system; lobbyists, decision making; legislative norms, folkways and legislative-executive relations. 3 credit hours.

PS 309 The American Presidency
The role of the President as commander-in-chief, legislative leader, party leader, administrator, manager of the economy, director of foreign policy and advocate of social justice; nature of presidential decision making, authority, power, influence and personality. 3 credit hours.

†PS315 Political Bureaucracy
The nature and function of governmental bureaucratic organizations with particular emphasis on the decision-making process. Attention paid to the sources and consequences of increasing bureaucracy on the ability to govern. 3 credit hours.

†PS326 Real Estate Law
A variety of legal skills in real estate law. Special attention given to title, operations, mortgage, deeds, leases, property taxes, closing procedures and documents. 3 credit hours.

†PS328 Legal Management and Administrative Skills
An examination of the procedures and systems necessary to run a law office efficiently. Students will learn such administrative skills as how to interview clients, conduct legal correspondence and maintain legal records. Proven management techniques for keeping track of filing dates and fees, court dockets and calendars are also examined. 3 credit hours.

†PS329 Legal Library Skills
A systematic appraisal of the duties, responsibilities and skills required of paraprofessionals employed in law libraries. 3 credit hours.

†PS330 Legal Investigation
Examines skills needed to conduct investigations that are a routine part of the practice of law. How to search a title and how to trace patent rights; principles of fact-gathering in a wide range of cases (e.g., criminal, divorce, custody, housing). 3 credit hours.

PS331 Political Theory and the Supreme Court
Writings of prominent judicial theorists and political scientists in the area of Supreme Court judicial decision making and judicial review; the political impact of the Supreme Court; the judge as politician; implementation of judicial decisions in the political arena; current cases before the Supreme Court. 3 credit hours.

PS332 Constitutional Law
Prerequisite: PS121. Principles and concepts of the United States Constitution as revealed in leading decisions of the Supreme Court and the process of judicial review. 3 credit hours.

PS390 Political Modernization
Comparative analysis of political change and development. Political transition, political integration and nation building; institutional developments; political parties; military elites, youth, intellectuals, the bureaucracy, economic development and political culture. 3 credit hours.

†PS406 Public Affairs Research
Students prepare recommendations on policy problems presented to the institute by governmental bodies on the municipal, state and federal levels or by private groups, 3 credit hours.

†PS415 Internship in Legal and Public Affairs
Students will have the opportunity to work as paraprofessionals in law offices and government agencies, and to share their experiences with other interns in legal and public affairs. Permission of the instructor is required. 3 credit hours.

PS422 State and Local Legislative Politics
A mock legislative assembly running concurrently with the Connecticut General Assembly and dealing with the same issues. This legislature will hold committee meetings, public hearings, plenary sessions and press coverage using campus media. 3 credit hours.

†PS430 Computers and the Law
An analysis of the ways in which the advent of the computer has affected law and the legal profession. Students will explore methods of using computers for legal research, the effects of computers on criminology and the administration of justice, the impact of mass data banks on the right to privacy and the freedom of choice. 3 credit hours.

†PS440 Legal Research
Prerequisite: PS240. The purpose of this course is to give the student practical experience in researching and writing on realistic legal problems. Specific written assignments will require students to make use of all the library tools. Student will learn how to prepare and analyze legal memoranda and briefs. 3 credit hours.

PS461 Political Theory: Ancient and Medieval
Prerequisite: HS111. Foundations of Western political thought: Plato, Aristotle, St. Augustine, St. Thomas Aquinas, Machiavelli, Hobbes, Locke, Rousseau, Mill and Burke. An attempt will be made to apply the political thought of these thinkers to contemporary political questions. 3 credit hours.

PS462 Political Theory: Modern and Contemporary
Prerequisite: HS112. Modern and contemporary political theories. Major characteristics of ideology, the psychological and sociological functions of theories, nationalism, the nature of totalitarianism, fascism, Nazism, Marxian theory, communism and democratic theory. 3 credit hours.

PS494-498 Studies in Political Science
Special studies on a variety of current problems and specialized areas in the field not available on the regular curriculum. 3 credit hours per course.

PS499-500 Senior Seminar in Political Science
Prerequisite: permission of the department chairman. Construction and preparation of an individual research project in political science by the student and the presentation of that project in oral form within the seminar and in written form as the seminar thesis. Required of all political science majors. 3 credit hours.

PS599 Independent Study
Directed research on special topics to be decided upon in consultation with the chairman of the department. 3 credit hours.

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PS 499-500 Senior Seminar in Political Science
Prerequisite: permission of the department chairman. Construction and preparation of an individul research project in political science by the student and the presentation of that project in oral form within the seminar and in written form as the seminar thesis. Required of all political science majors. 3 credit hours.

PS 599 Independent Study
Directed research on special topics to be decided upon in consultation with the chairman of the department. 3 credit hours.

Psychology

P 111 Introduction to Psychology
Understanding human behavior. Motivation, emotion, learning, personality development, intelligence, as they relate to normal and deviant behavior. Applying psychological knowledge to everyday personal and societal problems. 3 credit hours.

P 212 Business and Industrial Psychology
Prerequisite: P111. Psychological principles and research as they apply to the problems of working with people in organizations. Analysis of problems and decisions in the use of human resources, including selection and placement, criterion measurement, job design, motivation. 3 credit hours.

P 216 Psychology of Human Development
Prerequisite: P111. Human development over the life cycle—conception through death; the changing societal and institutional framework; key concepts and theoretical approaches; understanding development through biography; child rearing and socialization here and abroad. 3 credit hours.

P 251 Behavior Therapies
Prerequisite: P111. Principles of therapeutic behavior management. Alteration of maladaptive behavior patterns in institutional, neighborhood, home, educational and social settings by operant and respondent reinforcement techniques. Habit management in oneself and one's children. 3 credit hours.

P 301 Statistics for Behavioral Sciences
Prerequisite: any college-level mathematics course. Concepts and assumptions underlying statistical methods essential to design and interpretation of research on human subjects. Fundamental descriptive and inferential methods. 3 credit hours.

P 305 Experimental Methods in Psychology
Corequisite: P301. Methods of designing and analyzing psychological experiments. The scientific method as applied to psychology. Consideration of research techniques, experimental variables, design problems, data analysis. 3 credit hours.

P 306 Psychology Laboratory
Prerequisite: P305. Group and individual experiments to be carried out by students. Research techniques for studying learning, motivation, concept formation. Data analysis and report writing. Offered only in spring semester of odd-numbered years. 3 credit hours.

P 315 Human and Animal Learning
Prerequisite: P111. Different types of human and animal learning. Learning as an adaptive mechanism. Psychological principles underlying learning. Practical applications of learning principles. 3 credit hours.

P 321 Social Psychology
Prerequisites: P111, SO 113. The interdependence of social organizations and behavior. The interrelationships between role systems and personality; attitude analysis, development and modification; group interaction analysis; social conformity; social class and human behavior. 3 credit hours. (Same as SO 320).

P 330 Introduction to Community Psychology
Prerequisite: P111. Key concepts of community psychology/community mental health. Community problems, needs and resources. The helping relationship. Intervention techniques. Programming services. Understanding behavioral differences. Careers in community psychology. 3 credit hours.

P 331-332 Undergradute Practicum in Community Psychology
Corequisites: P330 or permission of the instructor. Supervised field experience in community psychology/mental health settings. Exploration of service delivery. Development of basic repertoire of helping skills. Behavioral log. Project reporting. Understanding helping roles at individual, small group, and institutional levels. 1-6 credit hours with a maximum of 3 credit hours per semester.

P 336 Abnormal Psychology
Prerequisite: P111. Psychological and organic factors in personality disorganization and deviant behavior. Psychodynamics and classifications of abnormal behavior. Disorders of childhood, adolescence and old age. Evaluation of therapeutic methods. 3 credit hours.

P341 Psychological Theory
Prerequisite: P111. Contemporary theory in psychology. Emphasis on those theories which have most influenced thinking and research in sensation, perception, learning, motivation, personality. Offered only in fall semester of odd-numbered years. 3 credit hours.

P350 Human Assessment
Prerequisite: P301. Basic principles of measurement, applied to problems of the construction, administration and interpretation of standardized tests in psychological, educational and industrial settings. Offered only in spring semester of even-numbered years. 3 credit hours.

P361 Physiological Psychology
Prerequisites: P111; SC121, SC122 or SC123. Endocrinological, neural, sensory and response mechanisms involved in learning, motivation, adjustment, emotion and sensation. Offered only in spring semester of even-numbered years. 3 credit hours.

P370 Psychology of Personality
Prerequisites: P111, junior class standing. Theory and method in the understanding of normal and deviant aspects of personality; theories of Freud, Jung, Rogers, neo-Freudians and others. 3 credit hours.

P599 Independent Study
Prerequisites: consent of faculty member and chairman of department. Opportunity for the student under the direction of a faculty member to explore an area of personal interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Public Administration

PA101 Introduction to Public Administration
The nature of and problems involved in the administration of public services at the federal, state, regional and local levels. 3 credit hours.

PA150 Health Care I
Special course for hotel management majors. Admission to course by permission of the instructor. 1 credit hour.

PA151 Health Care II
Prerequisite: PA150. Special course for hotel management majors. Admission to course by permission of the instructor. 1 credit hour.

PA302 Public Administration Systems and Procedures
Stressed are the major staff management functions in government and in non-profit agencies: planning, budgeting, scheduling and work analysis. 3 credit hours.

PA305 Institutional Budgeting and Planning
Budgeting as an institutional planning tool, as a cost control device and as a program analysis mechanism is stressed. Attention is given to the salary expense budget, the revenue budget, the capital budget and the cash budget. 3 credit hours.

PA307 Urban and Regional Management
Methods and analysis of decision-making related to urban and regional problems. Topics include housing, land use, economic development, transportation, pollution, conservation and urban renewal. 3 credit hours.

PA308 Health Care Delivery Systems
An examination of the health care delivery systems in the U.S., including contemporary, economic, organizational, financing, manpower, cost and national health insurance issues. 3 credit hours.

PA315 Metropolitan Planning
Analysis of demographic data, public expenditures and land-use-control surveys. Land-use controls, planned unit development, the development of new communities, and urban growth policy are discussed. State and federal policies affecting urban growth are stressed. 3 credit hours.

PA316 Urban Housing
Encompassed are the subjects of housing management, planning and finance and policy. Specific topics such as the provision of low-income housing, the use of mortgage insurance, interest subsidies, site planning, rent controls, code enforcement, mortgage markets and the rise in housing abandonment are stressed. 3 credit hours.

PA320 Municipal Finance and Budgeting
This course involves the analysis of fiscal policy at the municipal level. The financing and budgeting of services and improvements by local government. 3 credit hours.

PA390 Administrative Law
The basic legal arrangement of administrative organization; rule governing the use of administrative powers; legal procedures for enforcement of executive responsibilities. 3 credit hours.

PA405 Public Personnel Practices
Study of the civil service systems of the federal, state and local governments including a systematic review of the methods of recruitment, evaluation, promotion, discipline, control and removal. 3 credit hours.

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PA 408 Collective Bargaining in the Public Sector
Analysis of collective bargaining in the public sector, with emphasis on legislation pertaining to government employees. 3 credit hours.

PA 490 Public Health Administration
An examination of public health activities, including public health organization, environmental health, disease control, use of information systems and social services. 3 credit hours.

PA 491 Public Health and Environmental Law
The role of the law in public health and environmental protection. Emphasized are the legal tools and administrative techniques used in the enforcement and administration of public health and environmental control policy. 3 credit hours.

PA 512 Seminar in Public Administration
Selected topics related to public administration are chosen. 3 credit hours.

PA 599 Independent Study
Independent study on a project of interest to the student under the direction of a faculty member approved by the department chairman. 3 credit hours.

Quantitative Analysis

QA 118 Business Mathematics
An introduction to business math and its applications to managerial decision making. Topics include trade pricing, simple interest and discount, compound interest, annuities, present value, credit and loan amortization, real estate investments; payroll, depreciation, income tax and financial statements. 3 credit hours.

QA 128 Quantitative Techniques of Management
Prerequisite: QA 118. An introduction to business statistics and its applications. Topics include description of data, measures of central tendency, measures of dispersion, index numbers, time series analysis probability distributions and concepts. Use of the computer in problem solving will also be introduced. 3 credit hours.

QA 216 Probability and Statistics
Prerequisite: QA 128 or equivalent. A course in elementary probability and statistical concepts with emphasis on data analysis and presentation, frequency distributions, probability theory, probability distributions, sampling distributions, statistical inference, hypothesis testing, the T, chi-square and F distributions. 3 credit hours.

QA 250 Quantitative Techniques II
Prerequisite: QA 216. A course stressing advanced applications of quantitative techniques to the solution of business problems. Topics include: classical optimization techniques, non-linear programming, topics in mathematical programming, and graph theory. 3 credit hours.

QA 314 Field Research in Business and Government
Prerequisite: QA 128. Methods of determining customer reactions to goods and services offered in the marketplace and to business establishments. Topics include: the nature and role of sampling; characteristics of sampling procedures; design of sample surveys; development of survey designs; procedures used in interviewing, tabulation, data analysis and presentation of research results; and the appraisal of performance to be expected from survey designs. 3 credit hours.

QA 333 Advanced Statistics
Prerequisite: QA 216. A course stressing advanced statistical concepts and statistical methods relating to business. Topics include: regression and correlation, multiple regression, and analysis of variance (ANOVA). Computer Use Fee. 3 credit hours.

Retailing

RT 121 Introduction to Retailing
Prerequisite: MK 105. Introductory survey course of the problems and opportunities in the retail distribution field including a basic understanding of buying, selling and promotion of the retail consumer market. 3 credit hours.

RT 212 Retailing of Textiles
Prerequisite: RT 121. An in-depth study of the technical makeup of fabrics, their design and their application for the future. Emphasis is placed on fabric knowledge as well as problems associated with procurement, distribution and other marketing activities at the retail level. 3 credit hours.

RT 215 Retail Credit Management
Prerequisite: RT 121. An overview of the forces of credit as they apply to stimulating the retailing scene. A philosophical and operational approach to the uses of credit together with the responsibilities and limitations that it imposes on both the grantor and the grantee. 3 credit hours.

RT 218 Retailing of Fashions
Prerequisite: RT 121. The significance of fashion design in both apparel and home furnishings with emphasis on the relationship of the past to the present and to the future possibilities in merchandise. Emphasis is placed on problems associated with procurement, distribution and other marketing activities peculiar to fashion merchandising at the retail level. 3 credit hours.

RT309 Retail Advertising and Sales Promotion
Prerequisite: RT121. Intensive review of techniques of retail sales promotion, including newspaper, magazine, radio, television and direct mail. Great emphasis is placed on store imagery and its appropriateness in a variety of marketing situations. Stress is placed on a review of current advertising campaigns by major retail organizations. 3 credit hours.

RT310 Retail Merchandise Management
Prerequisite: RT121. A total review of the profit and loss aspect of retailing. The fundamentals of achieving total management performance in the retail field. The central course in the retail curriculum, required of every retailing major. 3 credit hours.

RT313 Retail Buying
Prerequisite: RT121. Modern technical evaluation of the highly specialized field of purchasing merchandise for resale at the retail level, including study and evaluation of the differing techniques employed by department stores, chain stores, discount stores and independent merchants. A total review of the techniques of merchandise buying in all product categories. 3 credit hours.

RT599 Independent Study
Prerequisites: RT121, junior standing. A planned program of individual study under the supervision of a member of the faculty. 3 credit hours.

Russian

RU101-102 Elementary Russian
Stresses pronunciation, aural and reading comprehension, basic conversation and the fundamental principles of grammar. 6 credit hours.

RU201-202 Intermediate Russian
Prerequisites: RU101-102 or the equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Students are encouraged to read in their own areas of interest. 6 credit hours.

Science and Environmental Studies

Courses that are marked with an asterisk (*) are usually scheduled every other academic year. Courses marked with a dagger (†) may be offered at the discretion of the department.

***SC111-112 Physical Science**
The meaning of scientific concepts and terms and their relation to other areas of learning and to daily living. Development and unity of physical science as a field of knowledge. Includes astronomy, physics, chemistry and geology. 6 credit hours.

†SC113 Physical Science Laboratory
Prerequisite: SC111. To be taken with SC112 or after. Direct experience with physical experimentation. Training in design, conduct, analysis and reporting of physical experiments. Emphasis on historically important theories and experiments. Laboratory Fee. 1 credit hour.

***SC126 Astronomy**
An introduction to present concepts concerning the nature and evolution of planets, stars, galaxies and other components of the universe. The experimental and observational bases for these concepts are examined. 3 credit hours

***SC135 Earth Science**
A dynamic systems approach to phenomena of geology, oceanography and meteorology. Emphasis on interrelations of factors and processes and on importance of subject matter to human affairs. Suitable for non-science as well as for science majors. 3 credit hours.

***SC146 Fundamentals of Oceanography**
Description of major aspects of geological, chemical, physical and biological oceanography. Emphasis on human use and disuse of oceans. Suitable for non-science as well as science majors. 3 credit hours.

***SC507 Characterization and Treatment of Wastes with Laboratory**
Prerequisites: SC135, BI361 or CH201-202, CH211; M117-118. The types of waste materials generated by agriculture, industry, transportation, municipalities and individuals are discussed and the methods of detection and identification and treatment of each type of waste materials are covered. Laboratory Fee. 4 credit hours. Spring 1986.

***SC509 Scientific Photographic Documentation**
Prerequisites: BI121-122 and consent of the instructor. Theory and practice of photographic image formation and recording. Lecture, demonstration and laboratory experience. Photography and documentation of natural objects, organisms and artifacts of biological, medical, pathological and forensic interests. Photomicroscopic, ultraviolet, infrared, color, and black and white techniques. Laboratory Fee. 4 credit hours, 3 lectures and 1 laboratory per week. Fall 1985.

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***SC513 Environmental Pollutants with Laboratory**
Prerequisites: CH116 and BI 220, or permission of instructor. Physical, chemical and biological properties of the major environmental pollutants. New and older methods of sampling, identification and measurement are presented. Laboratory Fee. 4 credit hours. Spring 1985.

Shipbuilding and Marine Technology

SB101 Introduction to Shipbuilding
Intended primarily for shipbuilding and marine technology students. Relevant to students formally enrolled in other majors but may work in the shipbuilding environment. Introduction to ship construction and shipbuilding practice. Topics include: ship geometry, nomenclature, structural materials, loading, launching techniques. 3 credit hours.

SB102 Ship Design
Intended primarily for shipbuilding and marine technology students. Relevant to students formally enrolled in other majors but may work in the shipbuilding environment. Introduction to the general design of various naval vehicles. Topics include a more detailed examination of naval architecture principles (introduced by SB101) and emphasizing hydrostatics, flotation, trim and stability. 3 credit hours.

SB201 Nuclear Ship Propulsion Systems
Intended primarily for shipbuilding and marine technology students. Relevant to students formally enrolled in other majors but may work in the shipbuilding environment. Overview of thermodynamic principles, elementary nuclear physics and reactivity, types of nuclear reactors and radiation concerns. Safety emphasized. Cost considerations and comparisons to various power systems for naval vehicles. 3 credit hours.

Shipyard Management

SM410 World Shipbuilding
Analysis of the world merchant fleets and the U.S. merchant fleet. Discussion and analysis of comparative maritime aids. The following countries will be reviewed: Japan, United Kingdom, Norway, Sweden, West Germany, France and the United States. A review also will be made of the Communist countries to the extent that information is available. World shipbuilding competitive factors will be analyzed in this course. 3 credit hours.

SM412 Shipyard Management: Finance
A study of determinants in forecasting shipyard investment demand. Discussion of comparative efficiency and marine facilities. Private sources of financing and federal subsidies. Cost and benefits from shipbuilding subsidies. Discussion of marine aids available in American shipbuilding. 3 credit hours.

SM414 Shipyard Management: Planning and Control
This course covers planning and control in a commercial shipyard, required by all levels of management to produce quality ships on time. Special emphasis is placed on planning for the use of resources by middle-level managers and supervisors. Stress is placed on effective management of time, facilities, materials and manpower. 3 credit hours.

SM415 Shipyard Management: Marketing
A study of methods to employ when defining future markets that will determine new shipyard production. A study of the relationship between investment, relative productivity and share of the world shipbuilding market. Determination of market share as affected by technical efficiency and cost efficiencies. Emphasis on problems in the dry and liquid bulk sectors of the industry. 3 credit hours.

Sociology

SO113 Sociology
The role of culture in society, the person and personality; groups and group behavior; institutions; social interaction and social change. 3 credit hours.

SO114 Contemporary Social Problems
Prerequisite: SO113 or consent of instructor. The major problems which confront the present social order, and the methods now in practice or being considered for dealing with these problems. 3 credit hours.

SO155 Women in Society
An overview of woman's role in the social system. Discussion includes myths and realities of sex differences. Areas covered include analysis of the relationship of women to the economy, the arts, sciences and how these affect the behavior of women in the contemporary world. 3 credit hours.

SO214 Deviance
Prerequisite: SO113 or consent of the instructor. (Offered in the spring semester only.) Centered around deviance as a social product. The problematic nature of the stigmatization process is explored in such areas as alcoholism, crime, mental illness and sexual behavior. 3 credit hours.

SO218 The Community
Prerequisite: SO113 or consent of instructor. The community and its provisions for health, education, recreation, safety and welfare. Theoretical concepts of community, plus ethnographic studies of small-scale human communities, introduce students to fundamental concepts of community. 3 credit hours.

SO220 Physical Anthropology and Archaeology
An introduction to the study of human evolution and of present physical variations among mankind. Includes geologic time, primate evolution and early man and his culture. 3 credit hours.

SO221 Cultural Anthropology
A systematic study of the culture of preliterate and modern societies and of cultural change. Includes analyses of religion, economics, language, social and political organization and urbanization. 3 credit hours.

SO231 Juvenile Delinquency
Prerequisites: SO113, P111. This course is offered as CJ221 in university schedules. An analysis of delinquent behavior in American society; examination of the theories and social correlates of delinquency, and the sociolegal processes and apparatus for dealing with juvenile delinquency. 3 credit hours. (Same as CH221.)

SO250 Research Methods
Prerequisite: sophomore status. The student develops the concepts necessary for selection and formulation of research problems in social science, research design and techniques, analysis and interpretation of research data. 3 credit hours.

SO310 Primary Group Interaction
Prerequisite: SO113. Exploration of communication in group process. Building a group and analyzing group structure and interaction; the ways people communicate emotionally and intellectually. 3 credit hours.

SO311 Criminology
Prerequisites: P111, SO113. An introduction to the principles and concepts of criminology; analysis of the social context of criminal behavior, including a review of criminological theory, the nature and distribution of crime, the sociology of criminal law and the societal reactions to crime and criminals. 3 credit hours. (Same as CJ311.)

SO312 Marriage and the Family
Prerequisite: SO113 or consent of instructor. The formation, functioning and dissolution of relationships in contemporary American society is examined from an applied sociology perspective. 3 credit hours.

SO313 Sociology of Sport
Prerequisite: SO113 or consent of the instructor. A study of the relationships among sport, culture and society. Emphasis is on both amateur and professional sports and their impact on the larger social order. Course will examine sport from a comparative and historical perspective, but will also focus on problems confronting the world of sport in contemporary American society. 3 credit hours.

SO315 Social Change
Prerequisite: SO113 or consent of instructor. Sources, patterns and processes of social change with examination of classical and modern theories of major trends and developments as well as studies of perspectives on microlevels of change in modern society. 3 credit hours.

SO318 Political Sociology
Prerequisite: SO113 or consent of instructor. Concepts, theories and basic issues in the sociological analysis of political systems. Social factors in political attitudes and behavior with emphasis on understanding the functional and dysfunctional aspects of sociopolitical coordination and conflict. 3 credit hours.

SO320 Social Psychology
Prerequisites: P111, SO113. This course is offered as P321 in university schedules. The interdependence of social organizations and behavior. The interrelationships between role systems and personality; attitude analysis, development and modification; group interaction analysis; social conformity; social class and human behavior. 3 credit hours. (Same as P321.)

SO321 Social Inequality
Prerequisite: SO113 or consent of instructor. Organization of social class: status, power and process of social mobility in contemporary society. Social stratification, its functions and dysfunctions, as it relates to the distribution of opportunity, privilege and power in society. 3 credit hours.

SO322 Sociology of Education
Prerequisite: SO113 or consent of instructor. Effects of education on American society; the organizational structure; major emphasis on the interactive roles of students, teachers and administrators; particular concern with the relationship between education and socio-economic status and problems of organizational change in the American school system. 3 credit hours.

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SO331 Population and Ecology
Prerequisite: SO113 or permission of the instructor. Societal implications of population changes and trends; impact of man as a social animal upon natural resources, cultural values and social structures; cultural values and social structures, their influence on environmental ethics. 3 credit hours.

SO333 Sociology of Aging
Prerequisite: SO113 or consent of the instructor. The sociological phenomenon connected with aging in America. Discussion of the connections between personal troubles and social issues encountered by members of this society as they age. An examination of age stratification and the resultant problems of ageism, prejudice and discrimination. Systematic review of major theoretical framework and research studies; emphasis will be placed on the application of sociological theory and research in the field of aging. 3 credit hours.

SO337 Human Sexuality
Prerequisite: SO113 or consent of the instructor. A scientific study of human sexual behavioral patterns, social class attitudes and cultural myths. Topics include reproductive systems, sexual attitudes and behavioral patterns, abortion and sexual laws and variations in sexual functioning. 3 credit hours.

SO340 Medical Sociology
Prerequisite: SO113 or consent of the instructor. An analysis of a major social institution, the health care field. Emphasis placed on socio-cultural aspects of the field; general overview of the organization and delivery of health care services and the current problems and issues. 3 credit hours.

SO390 Sociology of Organizations
Prerequisite: SO113 or consent of the instructor. Classic sociological theories of organization with emphasis on the concepts of bureaucracy, scientific management, human relations and decision-making theory. The relevance of these ideas to concrete organization contexts, e.g., civil service, business, social movements and political parties, charitable institutions, hospitals. 3 credit hours.

SO400 Minority Group Relations
Prerequisite: SO113 or consent of the instructor. An interdisciplinary analysis of minority groups with particular attention paid to those regional, religious and racial factors that influence interraction. Designed to promote an understanding of subgroup culture. 3 credit hours.

SO410 Urban Sociology
Prerequisite: SO113 or consent of the instructor. The challenges of the cities. Residential patterns together with the physical development of cities and redevelopment plans. An examination of groups of people and their environment and the relationship between the two. 3 credit hours.

SO413 Social Theory
Prerequisite: nine semester hours in sociology. An analysis of the development of sociology in the nineteenth and twentieth centuries with particular emphasis on the theories of Comte, Durkheim, Simmel, Weber, Marx, deTocqueville and others. 3 credit hours.

SO414 Sociology of Occupations and Professions
Prerequisite: SO113 or consent of the instructor. A sociological analysis of the division of labor, occupational groupings, career patterns and professional associations in modern society. 3 credit hours.

SO418 Public Opinion and Social Pressure
Prerequisites: SO113, P111. An intensive analysis of the nature and development of public opinion with particular consideration of the roles, both actual and potential, of communication and influence. 3 credit hours.

SO440 Undergraduate Seminar
Prerequisite: consent of the department chairman. A detailed examination of selected topics in the field of sociology and a critical analysis of pertinent theories with emphasis on modern social thought. 3 credit hours.

SO441 Sociology of Death and Suicide
Prerequisite: SO113 or consent of the instructor. A confrontation with individual mortality and an academic investigation of such phenomena as funerals, terminal illness and crisis intervention, among many others. 3 credit hours.

SO450 Research Seminar
Prerequisite: P301 or M228. The student develops and carries out an original reserach project in social science, reporting this procedure to the class. 3 credit hours.

SO451-459 Special Topics: Sociology, Social Welfare, Anthropology
Prerequisite: SO113, SO221, or permission of instructor. Special topics in sociology, anthropology or social welfare on a variety of current problems and specialized areas not available in the regular curriculum. 3 credit hours.

SO501-502 Practicum
Prerequisite: consent of the department chairman. Field experience in sociology or anthropology. Seminars in conjunction with this experience before off-campus field work is undertaken. Contact during the field work experience and guidance by the mentor provide an opportunity for understanding group and individual dynamics and their repercussions. Follow-up seminars and a paper are required. 1-6 credit hours.

SO599 Independent Study
Prerequisites: consent of instructor and chairman of department. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Social Welfare

SW220 Introduction to Social Welfare
Introduction to Social Welfare explores two basic questions from a historical perspective: Why are people poor, and, how societies have responded to the conditions of poverty. In examining these questions, the focus is on how the different economic, political, psychological, and sociological arrangements of society, and its social institutions, create conditions which stimulate and necessitate differing social welfare responses. 3 credit hours.

SW340 Group Dynamics
Prerequisite: consent of the instructor. Group dynamics is designed for students who seek to develop their leadership skills in working with groups of various types. This implies a cognitive and behavioral mastery of a range of complex variables for role effectiveness, including a working knowledge of personal, group and organizational dynamics, professional skills of facilitation, and values of one's professional identity. 3 credit hours.

SW350 Social Welfare as a Social Institution
Prerequisite: SW220 or SO113. The background and context of current social services are presented by a combination of guest speakers and on-site observations. 3 credit hours.

SW401-402 Field Instruction I and II
Prerequisite: consent of the coordinator of social welfare. Supervised experience relevant to specific aspects of social welfare in human service agencies, institutions and organizations at the local, state and federal levels. Seminars to assist students with the integration of theoretical knowledge and field techniques through lectures and class presentations. Students are required to spend eight hours a week in the field. 6 credit hours.

SW415-416 Methods of Intervention I and II
Prerequisite: SW350. Basic social work theory is presented in conjunction with practice skills to help students begin to develop professional techniques for intervention at both the macro and micro levels of practice. 3 credit hours.

SW475 Issues in Social Work
Prerequisite: Senior status or consent of the coordinator. A seminar to discuss and analyze current issues and changes in social work, social welfare and applied sociology. 3 credit hours.

SW599 Independent Study
Prerequisite: Consent of the particular faculty member involved and the coordinator. Designed to permit students to pursue specific areas of interest which may not be available in the curriculum. 1-3 credit hours.

Spanish

SP101-102 Elementary Spanish
Stresses pronunciation, aural and reading comprehension, basic conversation and the fundamental principles of grammar. 6 credit hours.

SP201-202 Intermediate Spanish
Prerequisites: SP101-102 or equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Students are encouraged to read in their own areas of interest. 6 credit hours.

SP301-302 Main Currents of Spanish Literature
Prerequisites: SP201-202 or equivalent. Reading of significant writers of Spanish literature from the Middle Ages to the twentieth century. 6 credit hours.

Theatre Arts

T131 Introduction to the Theatre
Play analysis from a literary standpoint and as it relates to special problems of the actor, director, designers and backstage personnel. Practical work in all phases within the classroom. Fall semester. 3 credit hours.

T132 Introduction to Production Styles
Study of dramatic genres and theatrical conventions through script and critical reading, as well as practical work in class. Spring semester. 3 credit hours.

T141 World Drama and Theatre
Dramatic literature in theatrical contexts from Greek origins through the French neoclassicists. 3 credit hours.

T142 World Drama and Theatre II
Dramatic literature in theatrical contexts from the English Restoration through the present. 3 credit hours.

T341 Acting
Development of acting skills for the stage through games, improvisation and scene study. 3 credit hours.

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T342 Directing
Prerequisite: consent of the instructor. Fundamentals of directing; staging techniques; working with actors; direction of a one-act play for workshop presentation. 3 credit hours.

T491-492 Special Topics in Theatre I-II
Prerequisite: consent of the instructor. Practicum in various areas of theatre: acting, directing, administration, technical theatre and design. Will be directly related to departmental productions. 6 credit hours.

T599 Independent Study
Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Tourism and Travel Administration

Courses offered other than the usual Fall-Spring schedule are noted.

TT165 Principles of Tourism and Travel
An introduction to aspects of tourism related to the hotel-motel industry. Foreign and domestic tourism and business travel will be included. 3 credit hours.

TT166 Touristic Geography
Prerequisite: TT165. An examination of the touristic areas of every major travel destination. Travel destinations; current developments of travel world wide; attracting individuals, pleasure groups and business conventions. 3 credit hours.

TT267 Shipping and Cruises
An analysis of the modern shipping and cruising industries; the passenger liner as a total vacation entity and its interrelationship with airlines, hotels and tour operators. 3 credit hours. (Spring)

TT268 Land Transportation
An examination of land transportation from its origins to modern times, including the effects of rail, coach, truck and automotive modes throughout the world. Development of trade and travel patterns, cultural trends and government intervention will also be explored. 3 credit hours. (Spring)

TT300 Special Topics

The tourism and travel industry is constantly changing due to new technology and avenues for their expansion and management. The purpose of these courses is to select special topics that are not covered in existing courses and expose students to recent developments and future research in the following specific course. Selected courses will be offered in the fall, spring and summer semesters. 3 credit hours.

TT300 The Psychology of Leisure Travel
An exploration of the consumer-traveler to better acquaint students with the needs and motivations of travel customers. This course will provide a heightened sensitivity to consumer behavior in the travel industry and will enhance the students' ability to develop and promote services that better and more profitably serve consumers of travel.

TT300 The Law and the Travel Industry
An investigation of the legalities and responsibilities involved in selling travel. The course will cover the many issues of law as they relate to the travel industry, including overbooking, rebates, class action suits, forms of ownership, bankruptcy, complaints and the impact of antitrust laws on the travel agent.

TT300 Travel Marketing Techniques
An examination of the procedures involved in planning, developing and implementing a total travel marketing campaign. Topics will include all aspects of travel and tourism advertising and promotion, including newspapers, magazines, radio, television, direct mail, directories and other media, as well as procedures for maintaining good public relations.

TT300 Tourism Planning and Development
A detailed analysis of the immense proportions of world tourism, spanning the processes of long-range planning and management strategies that insure tourism's proper development within the economic, political and social sectors. Topics range from market analysis and conceptual planning to site development, transportation, accommodations and support industries.

TT300 Travel Career Development
An insight into career opportunities in all segments of tourism, travel, and transportation. Educational and training requirements expected by most employers in the field of travel, job application procedures and the employment outlook for the tourism and travel industry will also be covered in detail.

TT300 Travel Agency Personnel Management
A systematic approach to the special personnel needs and problems encountered by owners and managers of travel agencies. This course will cover the entire procedure of recruiting, interviewing, evaluating and hiring travel staff, followed by management techniques of training, compensation and dealing with employee problems.

TT300 Group Travel Procedures
A case study analysis of the principles and procedures involved in the complex and logistically challenging area of group travel management. Topics covered feature: communicating with hotels and airlines, dealing with cancellations and refunds and communicating with the client.

TT300 Theme Park Operations and Management
An investigation of the specific management techniques and operations of planning, organizing and developing strategies involved in the construction and maintenance of an important leisure-time tourist facility, the theme park. Major theme parks in the United States and abroad will be studied in detail to aid in the investigation.

TT300 Tourism Development in New England
A detailed analysis of factors pertaining to tourism development that are unique to the New England region. Area attractions, site development, transportation, accommodations, support industries and other topics pertinent to the area will be analyzed, and city and state tourism facilities will be visited to aid in the analysis of the tourism field in New England.

TT300 Trends in Tourism
A futuristic look at the tourism industry based on predicted trends in society, including attitudes; economic factors, political situations, and global cooperation. Research into the statistical outlook for tourism and its impact on other related hospitality industries will also be featured.

TT300 Comparative Tourism
An indepth study and evaluation of tourism within selected foreign countries and an analysis of the political, geographical, agricultural, religious and socioeconomic status of the targeted areas.

TT300 World Tourist Attractions and Destinations
A geographical, social, cultural, political and economic analysis of the major tourist areas in the world and investigation into historical foundations and developments that have contributed to, or have had an impact upon, an area's offerings to the tourist market and their reasons for choosing such destinations.

TT300 The Disney Dream: EPCOT
An investigation of Walt Disney's Experimental Planned Community of Tomorrow, including an in-depth analysis of the center, an examination of its impact on today's hospitality industries and an exploration of the implications for futuristic mass market tourism operations, using scenario analysis.

TT300 Travel Agency Automation
An examination of the history of automation in the retail travel agency and insight into its computerized reservation and back office systems; guidelines for evaluating the various systems and preparing for maximum efficiency will also be covered.

TT370 Airline Transportation and Reservations Procedures
A study of the impact of the airlines within the tourism and travel industries. Topics include the historical background of air travel, developments, trends and the effect of deregulation on airlines, travel agencies and the consumer. A major part of the course will be devoted to the study of airline reservations and ticketing procedures. 3 credit hours. (Fall)

TT375 Travel Agency Management
Prerequisites: TT267, TT268, or consent of the instructor. A study of the travel business, defining the roles of the retail travel agent and the wholesale tour operator, and an examination of their relationships within the industry and with the traveling public. 3 credit hours. (Spring)

TT480 Wholesale Tour Systems
Prerequisite: consent of the instructor. An in-depth examination of the tour industry, including a detailed study of package tours, tour costing, marketing and escorting, and building wholesale tour networks. 3 credit hours. (Fall)

TT598 In-process Registration for Cooperative Education Program (Co-op)
Prerequisite: permission of the department co-op advisor required. The advisor works closely with the student in designing a plan of study that integrates full-time work experience and academic study within the student's academic major and area of interest. non-credit, but may be used in conjunction with other appropriate credit courses. (Offered fall, intersession, spring and summer semesters.)

COURSES

TT599 Independent Study
Prerequisite: permission of the department chairman required. Independent research projects or other approved phases of independent study. 3 credit hours.

World Music

MU106 Chorus
Styles of group singing, survey of choral music literature from around the world. 3 credit hours.

MU111 Introduction to Music
Basic forms and styles of music in the Western World. Music appreciation. 3 credit hours.

MU112 Introduction to World Music
Non-Western musical styles, their cultures and aesthetics; music of the indigenous cultures of the Americas and the advanced musics of the Near East and Far East; emphasis on India, the Orient, Southeast Asia, Africa and Indonesia. 3 credit hours.

MU116 Performance
Open to all students interested in ensembles or private instruction. Students with adequate scholastic standing may carry this course for credit in addition to a normal program. 1-8 credit hours; maximum 3 credit hours per semester.

MU 150-151 Introduction to Music Theory
Fundamentals of music: notation, physical and acoustical foundations; harmony and melody; modality, tonality, atonality; consonance and dissonance; tension; introductory composition; and ear training. 6 credit hours.

MU175-176 Musicianship I and II
Prerequisites: MU111 or 112; MU 150. Development of practical skills essential to performers and ensemble directors: ear training, sight singing, dictation, transcription, arranging, notation, score writing. 6 credit hours.

MU198-199 Introduction to American Music
Music of the North American continent from the Puritans to the present day; both European and non-European musical traditions, with emphasis on twentieth century developments. 6 credit hours.

MU201-202 Analysis and History of European Art Music
The growth of Western art music from its beginnings to the present day. Analysis of musical masterpieces on a technical and conceptual basis. 6 credit hours.

MU211 History of Rock
Study of rock music as a musical tradition and social, political and economic phenomenon. Ethnomusicological and historical examination of rock from its pre-1955 roots to the present. 3 credit hours.

MU221 Film Music
A course designed for both music and communication majors. Introduces students to the art, science and history of musical scores in film. Class work includes viewing and analysis of films with significant cueing and an introduction to the musical repertoire available to the film maker. 3 credit hours.

MU250-251 Theory and Composition
Investigation of music theory in various parts of the world, including the Western Art Tradition. Exercises in the composition of music within these theoretical constructs. Ear training and keyboard harmony. 6 credit hours.

MU299 Problems of Music
Music as an art form throughout the world. Music aesthetics and its relationship to the performance and composition of music. 3 credit hours.

MU300 Studies in Music I
Area studies in music and its parent culture. Cultural theory as related to the music; instruments of the area and their etymologies; performance practices; the social role of music, both art and folk. Areas offered depend on availability of staff: China, Japan, the Near East, the Indian subcontinent, Africa, American Indian, Afro-American, Latin America, the Anglo-Celtic tradition and others. 3 credit hours.

MU301 Recording Fundamentals
A study of the fundamentals of sound recording technique and methodology: acoustics microphones, microphone placement, tape formats and formulations, tape recorders, mono and stereo recording, live recording, mixers, signal processing. This course also emphasizes the importance of sound aesthetics and ethics in the sound recording process. 3 credit hours.

MU311-312 Multitrack Recording I and II

Prerequisite: MU301. Two semester course in the technique and methodology of multitrack studio and live recording. Includes detailed study of multiple tracking, mixing consoles, overdubbing, ping-ponging, tape recorders, signal processing, and mastering. 6 credit hours.

MU350 Studies in Music II

Area studies in musical forms; their history, evolution, and resultant metamorphoses, performance practices, and extant forms. Areas offered depend upon availability of staff. 3 credit hours.

MU401-402 Recording Seminar/ Project I and II

Prerequisite: MU312. Each student will complete a professional quality recording production or research and development project. Work may consist of internship or co-op experience in a professional recording studio. Seminar will also include presentations on areas of professional interest such as career opportunities and new development in studio technique and technology. 6 credit hours.

MU416 Advanced Performance

Prerequisite: consent of the department staff and a faculty adviser. Preparation and presentation of an instrumental or vocal performance indicating sufficient proficiency to warrant the awarding of a degree in world music. 3 credit hours.

MU500 Seminar in Advanced Research

Prerequisite: permission of the instructor. Bibliographical studies of major world music areas; investigation of current and historical musicological theories, analysis and criticism of musicological area literatures. 3 credit hours.

MU550 Studies in Urban Ethnic Music

Prerequisite: consent of the instructor. The music tradition of inner-city ethnic groups; emphasis on the operation of the oral tradition in the preservation of cultural values and customs as evidenced through music. Classroom discussion will be balanced by field research in the urban vicinity. 3 credit hours.

MU599 Independent Study

Opportunity for the student under the direction of a faculty member to explore an area of personal interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

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***Mary Ann Gargon**, receptionist for the university at Danbury

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Marian Gemmell, admissions secretary
Doreen Kasarda, secretary-receptionist

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Annette Greenhouse, library clerk, technical services
Kathleen Fanning, library clerk, technical services
Mary Callan, library clerk, public services
Paula Hafford, library clerk, public services
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Eric McDowell, B.A., sports information director
Leo Paquette, equipment manager
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Chuck Miller, M.S.W., assistant coach, football
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Chris Liebowitz, head coach, women's tennis
Joseph Maher, M.S., head coach, soccer
James Hanneken, B.A., head coach, cross country
Judy Samaha, M.S., head coach, softball
Robert Keville, B.S., head coach, lacrosse
Frank Vieira, M.S., head coach, baseball
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Barbara McGill, secretary

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Ola Beamon, accounts clerk
Shirley Berkun, accounts payable clerk
Mary Lou D'Addio, accounts clerk
Mary DeRosa, accounting clerk
Frances Tomczyk, accounting clerk
Mary Traggis, accounts clerk
*Helene Fillmore**, accounts clerk

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Helen Rothfuss, purchasing assistant

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Susan Hung, B.A., M.S., systems analyst programmer
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Carole Prest, computer operator
Raymond Pulaski, B.S., M.S., manager of computer operations and on-premise C.E.
Salvatore Votto, Jr., B.S., director of administrative hardware systems and telecommunications
Roberta C. Peccerillo, secretary

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Richard D. Baker, assistant to the director
Eldridge L. Hatcher, security advisor
Arcadio Rodriguez, security supervisor
Arthur P. Sheehan, security supervisor
John H. Amato, security officer
Michael McDermott, security officer

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Linda K. Simoni, security officer
Oscar J. Stanley, security officer
Ronald D. Whittaby, security officer

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Eva Widger, executive secretary

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Kathryn M. White, B.A., counselor
Joseph A. Zeoli, B.S., counselor
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Anastasia Avgerinos, secretary
Cynthia LaMonica, receptionist
Adele Olivi, secretary

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Eva Widger, executive secretary
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Michel Jean-Pierre, assistant supervisor of custodians
Donald Wright, assistant supervisor of maintenance
Anthony Ortiz, receiving and inventory clerk
*Maureen Chase, central duplicating service
*Mary Yurczyk, central duplicating service

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Elke Barne, custodian
Victor Bonilla, maintenance specialist
John Caprio, maintenance specialist
Forrest Felder, maintenance specialist
Biagio Franco, custodian
Jose Gutierrez, maintenance specialist
Santiago Malave, custodian
Daniel Ozinsky, maintenance specialist
Aguedo Gutierrez, maintenance specialist
Louis Pagan, maintenance specialist
Antonio Perez, maintenance specialist
Robert Slovesky, maintenance specialist
Ernest Taborelli, custodian
Michael Vitelli, custodian
Douglas Washington, custodian

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Terry Burr, painter
Frank Cuozzo, maintenance specialist
Lloyd Diehl, maintenance mechanic
Augusto DiMarzo, maintenance mechanic
Lucius Gatison, maintenance mechanic
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Robert Zgradden, maintenance mechanic

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Celia Lenkiewicz, secretary

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Robin Esposito, B.S., counselor
Karen Monteith, B.A., administrative assistant for veterans and financial aid
Evelyn Sherwood, executive secretary
Sandra Koelle, secretary

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Patricia Coleman, R.N., F.N.P., head university nurse
Paula Cappuccia, R.N., university nurse

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Robert Meister, chief engineer

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*Victoria Stegina, secretary

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Virginia Klump, registrar for graduate records
Ann Chernick, transcript credit analyst
Audrey Kushner, data communications specialist
Ellen Leuzzi, administrative secretary
Marjorie Manfreda, recorder, graduate records
Lois McCracken, recorder, undergraduate records
Annabelle D'Amicis, records assistant

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Carol Riordan, secretary

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Jacqueline L. Church, B.A., M.A., assistant director
Noel E. Tomas, B.J., news director
Anthony Nicosia, bookkeeper/secretary

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Polly MacDiarmid, console attendant
Stephanie Magliola, console attendant
*Angelo Rosadini, university postmaster
*Dolores Board, console attendant
*Vincent Chambery, mail clerk
*Gertrude Festa, console attendant

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Faculty 1984-1985

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B.S.E.E., B.S., University of New Haven

Aliane, Bouzied, Assistant Professor, Electrical Engineering
B.S.E.E., Ecole Polytechnique d'Alger; M.S.E.E., Ph.D., Polytechnic Institute of New York

Arnold, Joseph J., Associate Professor, Industrial Engineering
B.S., M.S., Southern Connecticut State College

Barrows, Robert P., Associate Professor, Professional Studies
B.S., Boston University; M.B.A., University of Connecticut

Bassett, Richard A., Lecturer, Management and Marketing
B.S., M.S., University of New Haven

Bechir, M. Hamdy, Associate Professor, Civil Engineering
B.C.E., Cairo University; M.A.Sc., University of Toronto; Sc.D., Massachusetts Institute of Technology

Bell, Srilekha, Associate Professor, English
B.A., M.A., University of Madras; M.A., Ph.D., University of Wisconsin

Bodon, Jean-Richard, Assistant Professor, Communication
B.A., Birmingham Southern College; M.A., University of Alabama; Ph.D., Florida State University

Bradshaw, Stephanie, Practitioner-in-Residence, Fashion Design
C.F.A., Parsons School of Design

Brody, Robert P., Associate Professor, Marketing
B.A., Wesleyan University; M.B.A., University of Chicago; D.B.A., Harvard University

Bronstein, Eva M., Assistant Professor, Communication
B.A., Brooklyn College; M.A., University of Maryland; Ph.D., CUNY Graduate Center of New York

Carfora, John, Lecturer, Economics and Quantitative Analysis
B.S., M.P.A., University of New Haven; M.S., London School of Economics and Political Science

Carriuolo, Ralf E., Professor, Humanities
B.A., Yale University; M.M., Hartt College; Ph.D., Wesleyan University

Carson, George R., Associate Professor, Civil Engineering
B.C.E., City College, New York; M.S.C.E., Columbia University

Chandra, Satish, Associate Professor, Business Law
B.A., University of Delhi; M.A., Delhi School of Economics; LL.B., Lucknow Law School, India; LL.M., J.S.D., Yale University

Chepaitis, Joseph B., Professor, History
A.B., Loyola College; M.A., Ph.D., Georgetown University

Chun, Kee W., Professor, Physics
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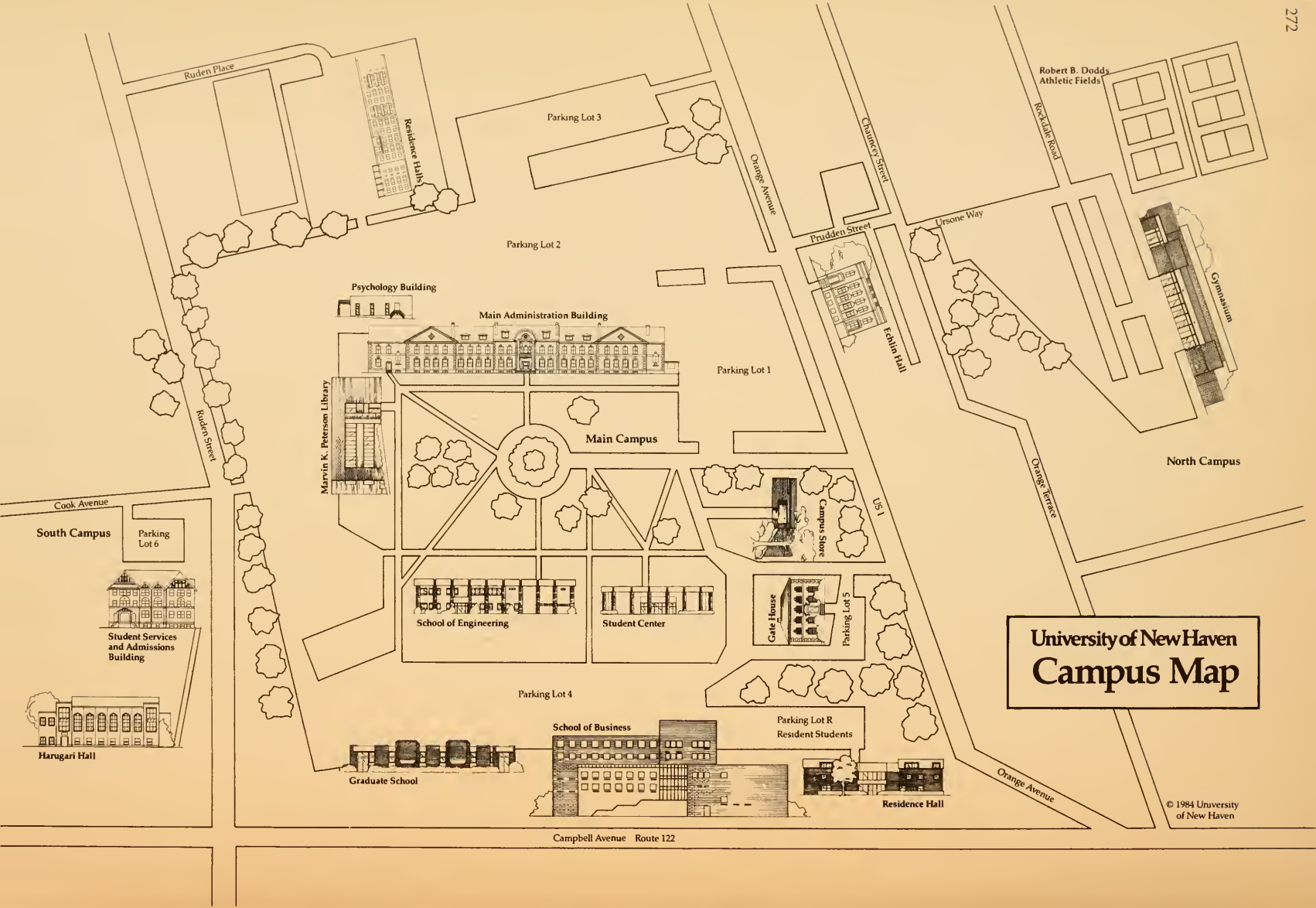

University of New Haven
Campus Map

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Undergraduate Application for Admission

Instructions: (Please print or type and complete both sides)

☐☐☐-☐☐-☐☐☐☐
Student's Social Security Number

University of New Haven

300 Orange Avenue, West Haven, Connecticut 06516

Name
(last, first, middle initial)

Other name
(under which records may be listed)

Address: Street

Apartment Number

City

State / Zip Code

Telephone Number

Home/Business

I have previously (please ✓) applied to ☐ or attended ☐ the University of New Haven. When? _____
year

Majors and Degrees Offered

Please **circle** the number of the program for which you are applying. Those students registering for a four-year Arts and Sciences program but are not sure of their major may circle 102; Business students may circle 220, and Engineering, 350. Registrants in these schools must decide on their major within two years.

Concentrations (conc.) and **Career Minors** are also noted. **A few programs are not offered in the evening and southeastern divisions.** For questions, please check with particular office.

Arts & Sciences	**A.S.**	**B.A.**	**B.S.**
Applied Mathematics			
Natural Science (conc.)			195
Computer Science (conc.)			197
Art		121	
Biology	108	109	171
Chemistry		153	
Communication		191	
Economics		117	
English		113	
Environmental Studies	134		177
Fashion Design (Art)	130	139	
General Studies	102		
Graphic & Advertising Design (Art)	104	105	
History		115	
Interior Design (Art)	132	140	
Journalism	106		
Mathematics		157	
Microbiology			179
Photography	112		
Physics		155	175
Political Science		111	
Psychology		119	
Social Welfare		189	
Sociology		167	
World Music		161	

Business	**A.S.**	**B.S.**
Accounting		
Financial		215
Managerial		217
Air Transportation Management		289
Business Administration	220	221
Shipyard Management (Career Minor)		275
Insurance (Career Minor)		277
Real Estate (Career Minor)		279
Business Data Processing		273
Business Economics		241
Communication	260	261
Criminal Justice		
Administration	254	255
Corrections	256	257
Forensic Science		253
Law Enforcement Science		293
Security Management		291
Finance		251
International Business		219
Management Science		259
Marketing		229
Operations Management		249
Personnel Management		267
Public Administration		231
Hotel, Restaurant and Tourism Administration		
Dietetic Technology	504	
Executive Housekeeping Administration	502	
General Dietetics		505
Hotel & Restaurant Management	538	537
Institutional Food Service Administration		539

Engineering	**A.S.**	**B.S.**
Chemistry	372	373
Chemical Engineering		371
Civil Engineering	376	377
Computer Science		357
Computer Technology	354	355
Electrical Engineering	358	359
Industrial Engineering	362	363
Materials Technology	368	369
Mechanical Engineering	360	361
Shipbuilding & Marine Technology		
Shipbuilding (conc.)	402	
Engineering (conc.)	404	
Management (conc.)	406	
Professional Studies and Continuing Education		
Arson Investigation		443
Aviation Science	452	
Fire & Occupational Safety	448	
Fire Science		
Administration		445
Technology		447
Occupational Safety & Health	450	451
Non Degree		
Personal Enrichment		890
Certificate Programs		890

Specify name of program

I am applying for (please ✓)

Main Campus
☐ Day Division ($25 application fee)
☐ Evening Division ($10 application fee)
☐ Summer ($5 application fee)

UNH/Southeastern
☐ Trimester ($10 application fee)
☐ Summer ($5 application fee)

I plan to study (please ✓) ☐ Full time; ☐ Part time

I plan to attend beginning (please ✓ and insert year)
☐ Fall 19___; ☐ Intersession; ☐ Spring 19___; ☐ Summer 19___

For UNH/Southeastern applicants ONLY (Please ✓ and insert year)
☐ Fall 19___; ☐ Winter 19___; ☐ Spring 19___; ☐ Summer 19___
Location (please ✓ one): ☐ Groton/New London; ☐ Electric Boat-Groton

Citizenship: U.S.A. ☐ Yes; ☐ No (please ✓)

(Birthplace) (Birthdate)

For Foreign Students ONLY (Financial aid is not available for foreign students)
Country of Citizenship _____ Visa Classification _____
Please indicate date TOEFL (Test of English as a Foreign Language) examination was taken and remit scores with application:

Optional: UNH seeks to draw students from all racial and ethnic groups in our society. For that reason, please indicate in what group you would include yourself _____
(Whether or not you answer this question will have no effect on your application for admission.)

The University of New Haven does not discriminate in admission or employment on the basis of sex, race, religion, age, national origin, or physical handicap. UNH is an equal opportunity affirmative action institution.

How did you learn about UNH? (please ✓)

☐ Direct mail; ☐ Newspaper ad; ☐ Newspaper article; ☐ Radio ad
☐ Radio story; ☐ TV; ☐ Parent; ☐ Other
☐ School Guide; ☐ Guidance counselor; ☐ College fair; ☐ Friend

Father's name _____ Education _____ Living? ___

Occupation _____ Place of employment _____

Mother's name _____ Education _____ Living? ___

Occupation _____ Place of employment _____

No. of sisters _____ No. of brothers _____

Living with mother and father? Yes ___ No ___

Emergency Information: (Person to be contacted in case of emergency)

Name _____ Telephone Number _____

Address _____

Additional Information & Questions:

1. Action on this application can be taken ONLY after the university has received ALL of the following:
   - A completed application form and NON-REFUNDABLE application fee.
   - *Official* academic transcripts from all educational institutions previously attended including high school. The student is responsible for arranging the forwarding of academic transcripts directly to the university.
   - Admission test scores.
2. Please mail to: University of New Haven, West Haven, CT 06516. Please note on envelope: ATTN: Day Admissions, ATTN: Evening Admissions **or** ATTN: UNH in Southeastern Connecticut, Groton, CT 06340.
3. If you have any questions, please call Day Admissions, (203) 932-7319; Evening Admissions, (203) 932-7231; or UNH at Southeastern Connecticut, (203) 932-7387, or (203) 449-8500.

- Financial aid applicants must contact the Financial Aid Office for information (203) 932-7315.
- Contact Office of Residential Life for information on housing (203) 932-7076.

History: (Note: failure to list all colleges previously attended constitutes grounds for dismissal.)

Education:

High School(s) / Location(s) Date(s) / Year of Graduation

College(s) / Location(s) Date(s)

Work Experience: (List employers & dates worked—last job first)

Military Service: (UNH will evaluate service school records for transferable credits.)

Branch _____ Rank _____ Dates of Service _____

Outside Interests: (List hobbies, honors, activities, civic groups, athletics, memberships, etc.)

Choice for satisfying the admission test (please ✓ one): ☐ American College Testing Program (ACT); ☐ Scholastic Aptitude Test (SAT); ☐ University of New Haven tests (taken at university)

In space provided here, please briefly state your career objectives/interests/goals.

Certificate To Be Signed By Applicant and Parent, Guardian, or Sponsor of Minors*

The information supplied on this application is complete and true to the best of my knowledge. All materials and supporting records submitted by me or on my behalf in connection with this application or my attendance will not be released to anyone other than authorized university personnel without my consent (or parents' consent if a minor applicant). See *Confidentiality of Student Records* in Student Handbook.

It is understood that incorrect or falsified information will be grounds for disapproval of this application or dismissal from the university. The undersigned agree(s) to pay all financial obligations if admitted to and attending the university, including obligations incurred if financial aid is terminated, reduced or postponed for any reason.

The undersigned also authorize(s) the Office of Public Relations of the university to publish the applicant's picture, address, major, honors, sports or other activities for public relations purposes should the applicant decide to attend the university in any capacity. This publicity authorization may be rescinded by notifying the Office of Public Relations in writing within 30 calendar days of admission to the university.

Applicant's Signature _____ Date _____

* If the applicant is under 18, the applicant and a parent or guardian must sign.

Parent or Guardian's Signature _____ Date _____

Comments (for office use):

Signature _____ Date _____

UNIVERSITY OF NEW HAVEN
Undergraduate Application for Financial Aid

300 Orange Ave.
West Haven, Conn. 06516
(203) 932-7315

Please Print

Only U.S. citizens and eligible non-citizens are qualified to apply for financial aid. If you would like to apply for financial aid please read the instructions below and complete both sides of this application form. Please note that the deadline for submitting applications is April 1st for current students and May 1st for new students. UNH will only consider late applications if funds remain available.

Name _____
(Last) (First) (Middle)

Permanent Home Address _____
(Street) (Apt.#)

_____
(City) (State) (Zip)

Home Phone Number (_____) _____

Local Address at UNH _____
(Street) (Apt.#)

_____
(City) (State) (Zip)

Local Phone Number (_____) _____

Please keep the Financial Aid Office informed of any changes in your permanent or local address.

Please list any other sources of financial aid or scholarships that you have applied for or received.

_____

_____

_____

_____

_____

Social Security Number _____

Date of Birth _____

Major _____

Please Check *All* Appropriate Boxes:

I am applying for financial aid for:

☐ Fall 19____ only ☐ Spring 19____ only
☐ Academic Year 19____–19____

I am a:

☐ new student
☐ current UNH student
☐ transfer student

Transfer students please list all previous colleges attended below:

_____

_____

_____

I plan to enroll in:

☐ Day Division
☐ Evening Division
☐ UNH in Southeastern Connecticut

I plan to attend UNH:

☐ full time
☐ part-time
# of courses per semester _____

Are you interested in the work-study program?

☐ Yes ☐ No

In order to be considered for financial aid you must complete the following steps:

- UNH Undergraduate Application for Financial Aid
- College Scholarship Service's Financial Aid Form (FAF)
- Submit *signed* copies of the student's and parent's *complete* income tax returns from the most recent tax year to the Financial Aid Office (including all schedules)
- Submit all 3 copies of the Pell Grant Student Aid Reports (SAR's) to the Financial Aid Office
- Request Financial Aid Transcript(s)—Transfer students only.

Complete the College Scholarship Service's Financial Aid Form (FAF). The FAF is available at any high school or college. Return it to CSS after January 1 and request that they send a copy of the report to the University of New Haven (code number 3663). On your FAF indicate that you are applying for a Pell Grant. You must apply for this program when you apply for financial aid at UNH. You will receive three copies of your Pell Grant Student Aid Report from the Federal Student Aid Program. Submit all three copies of your report to the UNH Financial Aid Office, regardless of whether or not you are eligible for a Pell Grant award. If you are applying to other colleges we will accept a photocopy of your report to determine the amount of your award on a preliminary basis.

You must submit *signed* copies of the student's and parent's *complete* income tax returns from the most recent tax year to the Financial Aid Office. Be certain to include all schedules. If the student or parent did not file an income tax return for the most recent tax year then they must sign a "Non-Tax Filers Form." These forms may be obtained by contacting the Financial Aid Office.

All transfer students must submit a Financial Aid Transcript from all colleges previously attended, regardless of whether or not you received aid. Forms are available at the UNH Financial Aid Office.

UNH will not consider incomplete applications. Be certain to complete all necessary steps. The Financial Aid Office will review your application and notify you regarding your eligibility. If you are eligible we will send you an award offer which details the type, amount, terms and conditions of your award.

To remain eligible for financial aid at UNH you must be in good academic standing. You must also make satisfactory progress towards your degree. Full-time day students must successfully complete 24 credits during an academic year. This should include registration for at least 12 credits per semester and successful completion of at least 9 credits per semester. Part-time students must complete all the coursework for which aid was awarded. Your academic record will be reviewed at the end of each semester. Failure to meet these academic requirements may result in a cancellation of your financial aid. Please note: the academic requirements for Guaranteed Student Loans will vary.

STATEMENT OF REGISTRATION COMPLIANCE

All financial aid applicants must complete a Statement of Registration Compliance and have it on file with the University. Any student who is required to register with the Selective Service and fails to do so is ineligible for federal student financial aid under Title IV of the Higher Education Act of 1965.

_____ I certify that I am *not* required to be registered with Selective Service because (check one)
- _____ I am female.
- _____ I am in the armed services on active duty. (NOTE: Members of the Reserves and National Guard are not considered on active duty.)
- _____ I have not reached my 18th birthday.
- _____ I was born before 1960.
- _____ I am a permanent resident of the Trust Territory of the Northern Mariana Islands.

_____ I certify that I *am* registered with Selective Service.

NOTICE: You will not receive Title IV financial aid unless you complete this statement and, if required, give proof that you are registered to the University.

STATEMENT OF EDUCATIONAL PURPOSE

In accordance with Section 498 of the Higher Education Act (20 U.S.C. 1088g) I hereby affirm that any funds received under the Pell Grant, the Supplemental Educational Opportunity Grant, the College Work-Study, the National Direct Student Loan, or the Guaranteed/Federally Insured Loan Programs will be used solely for expenses related to attendance at the University of New Haven. I further understand that I am responsible for repayment of a prorated amount of any portion of payments made which cannot reasonably be attributed to meeting educational expenses related to my attendance at the University of New Haven. The amount of each repayment is to be determined on the basis of criteria set forth by the U.S. Commissioner of Education.

I affirm that to the best of my knowledge, I do not owe a repayment on a Pell Grant, Supplemental Educational Opportunity Grant or a State Student Incentive Grant previously received for study at the University of New Haven. To the best of my knowledge, I am not in default on a National Direct Student Loan made at the University of New Haven or any Guaranteed/federally insured student loan guaranteed or insured by the Commissioner or by a guarantee agency for attendance at the University of New Haven.

I hereby make application for financial aid. The information given herein is true and correct to the best of my knowledge. I have read the conditions applying to eligibility for financial aid as stated on this application.

_____ _____

Signature Date

The University of New Haven does not discriminate in admission, financial aid or employment on the basis of age, race, sex, religion, national origin or handicap.

University of New Haven
300 Orange Avenue
West Haven, CT 06516

SECOND CLASS
POSTAGE PAID
New Haven, CT